# United States Department of Commerce

# Combined Coastal Program Document and Final Environmental Impact Statement for the State of Indiana

## April 2002

*Prepared by*:

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DESIGNATION: Final Environmental Impact Statement

TITLE: Proposed Federal Approval of the Indiana Lake Michigan Coastal Program

ABSTRACT: The State of Indiana has submitted its Lake Michigan Coastal Program to the Office of Ocean and Coastal Resource Management for approval pursuant to section 306 of the federal Coastal Zone Management Act of 1972 as amended (CZMA), 16 U.S.C. 1451 et seq. Approval would allow program administrative grants to be awarded to the state and would require that federal actions be consistent with the program. This document includes a copy of the program, which is a comprehensive program for coastal land and water use activities. It consists of numerous rules on diverse management issues that are administered under Indiana laws and is the culmination of several years of program development. The Indiana Lake Michigan Coastal Program promotes the beneficial use of coastal resources, prevents their impairment, and manages major activities that substantially affect numerous resources. The program will enhance decision-making processes used for determining the appropriateness of actions in the coastal area.

Approval and implementation of the program will enhance governance of Indiana's coastal land and water uses according to the coastal policies and standards contained in Indiana's statutes, authorities and rules. Federal alternatives to program approval include delaying or denying approval, if certain requirements of the Coastal Zone Management Act have not been met. The state could modify parts of the program or withdraw its application for federal approval if either of the above federal alternatives results from circulation of this document. This document includes responses to comments received on the draft EIS published in September 2001.

APPLICANT: State of Indiana, Department of Natural Resources

LEAD AGENCY: U.S. DEPARTMENT OF COMMERCE
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COMMENTS: Comments on the Final Environmental Impact Statement may be sent to NOAA at the address noted above. Pursuant to the National Environmental Policy Act, NOAA must wait a minimum of 30 days before making a final decision.

## NOTE TO READERS

The National Environmental Policy Act (NEPA) of 1969 requires that an environmental impact statement be prepared as part of the review and approval process by federal government agencies of major actions, which significantly affect the quality of the human environment. The federal action contemplated is approval of the Indiana Lake Michigan Coastal Program under section 306 of the federal Coastal Zone Management Act of 1972, as amended (CZMA). It is the general policy of the federal Office of Ocean and Coastal Resource Management (OCRM) to issue combined environmental impact statements and program documents.

Part I of this final Environmental Impact Statement (FEIS) was prepared jointly by the OCRM and the State of Indiana, and provides summary information concerning the Indiana Lake Michigan Coastal Program (LMCP), including how the state has addressed the requirements of the CZMA. Part II of the FEIS is a description of Indiana's coastal program and was prepared by the state. It has been reviewed by the OCRM and is relied upon as a description of the proposed action for purposes of NEPA. Part III fulfills the remaining NEPA requirements for a FEIS and was prepared by the OCRM with assistance from the State of Indiana.

An immediate effect of federal approval of the Indiana program is the qualification of the state for federal matching of funds for use in administering the program. In addition, the CZMA provides a procedure for the state to review federal actions for consistency with its approved coastal program.

For purposes of reviewing this proposed action, the key questions are:

- whether the Indiana program is consistent with the objectives and policies of the national legislation;
- whether the awarding of federal funds under section 306 of the federal Act will help Indiana to meet those objectives;
- whether Indiana management authorities and rules are adequate to implement the program;
- whether there will be a net environmental gain as a result of program approval and implementation.

OCRM has made a preliminary determination that the answers to these questions are affirmative. OCRM wants the widest possible circulation of this document to all interested agencies and parties in order to receive the fullest expression of opinion on these questions. OCRM thanks those participating in the review of the LMCP and this FEIS.

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# PART I: OVERVIEW

## A. SUMMARY OF THE INDIANA LAKE MICHIGAN COASTAL PROGRAM

The State of Indiana has developed the Indiana Lake Michigan Coastal Program (LMCP) describing current state coastal legislation and management policies. The LMCP proposes no new state programs, regulations, or laws. It is based on an approach termed "networking," which is a framework and process for linking existing state programs, agencies, and laws into a system that will meet federal requirements for an effective state coastal program.

Part II of this document describes the laws, regulations, and programs that are the basis of the LMCP. Chapter 5 includes management authorities and rules, which set forth managed uses in the coastal zone in Indiana, and various policies and authorities embodied in statute and regulations.

After several years of program development efforts, the state now seeks federal approval of its program. This summary briefly describes the key aspects of the program and the benefits of participation in the federal CZM program.

### 1. Program Authorities and Organization

The LMCP is a "networked" program made up of several Indiana natural resource protection programs. The lead agency for implementing the program is the Indiana Department of Natural Resources (DNR). Within DNR the Division of Soil Conservation has the lead for coordinating the programs of DNR and other state agencies into a comprehensive CZM program. The organizational structure of the program and specific means of coordinating the various agencies included in the program are discussed in Chapter 4 Part II.

State laws and regulations included in the LMCP are organized into ten issue-areas listed below. Detailed descriptions of each issue, its underlying authority and implementation process are provided in Chapter 5 of Part II of this document.

Procedural Framework for the Administration of Management Authorities

The State of Indiana has broad authority to create and implement laws and programs to manage natural and cultural resources within the state. The State of Indiana has a well-developed framework of laws, rules, and programs for the management of natural and cultural resources. The framework provides processes and procedures for developing rules, implementing programs, enforcing laws, issuing permits, providing for interagency coordination, and providing for public input.

The state framework is implemented through the Governor, Legislature, state courts, rule making boards including the Air Pollution Control Board, Water Pollution Control Board, the Solid Waste Management Board, and Natural Resources Commission, state agencies, and in some cases, through delegation to local governments.

The processes and procedures that govern activities managed in Indiana's coastal area include the following major state laws:

- Civil and Criminal Enforcement
- Pre-permit Hearings

- Administrative Orders and Procedures Act (AOPA)
- Informal Dispute Resolution
- Rule Development
- Nonrule Policy Development
- Ordinances
- Public Access to Agency Records and Meetings
- Indiana Environmental Policy Act
- Environmental Citizen Suit Act

Coastal Hazards

Coastal hazards, including shoreline erosion, can endanger life and property. In addition, the lakebed of Lake Michigan is held in trust and managed for the use and benefit of Indiana's citizens. Therefore the state has implemented programs and policies to prevent and mitigate the impacts of coastal erosion, flooding, storm damage, and other natural hazards. The DNR also has broad authority to protect the public trust in Lake Michigan waters through the following management authorities:

- Delineation of the Ordinary High Watermark
- Navigable Waterways Act
- Sand Nourishment Fund
- Technical Assistance for Coastal Construction

Water Quality

The DNR and IDEM have broad authority to protect against processes or systems likely to result in water quality degradation. As a general principle, a person may not throw, drain, allow to seep, or otherwise dispose of organic or inorganic matter that contributes to the pollution of streams or waters of Indiana (IC 13-18-4-5). The state also manages resources for public water supplies, activities that may cause or contribute to nonpoint or diffuse sources of water pollution, and activities that may affect the quality of groundwater.

The following are the major management authorities the state can utilize to protect water quality:

- Great Lakes Water Quality Standards
- Wastewater Permit Program (NPDES)
- Wastewater Facility Construction Permit Program
- Section 401 Water Quality Certification Program
- Bathing Beach Monitoring Program
- Clean Vessel Act Pumpout Program
- Marina Pumpout Rule
- Drinking Water Permit Program
- Wellhead Protection Program
- Lake Permit Program
- Residential Sewage Disposal Program
- Commercial Sewage Disposal Program
- Concentrated Animal Feeding Operations Permit Program
- Pesticide Program
- Land Application Program
- Water Well Driller's License

Water Quantity

The State of Indiana utilizes several programs and authorities to manage water resources. Residential construction in flood plains is regulated according to local ordinances and the state prohibits the construction of new homes in the flood way. Certain waterway maintenance activities are regulated locally by standards in state statute. The state oversees the voluntary establishment of Conservancy Districts as governmental entities to address water management issues.

Several statutes addressing activities in floodways, strategies for water emergencies, and planning for future water availability are administered directly by the state. Federal programs are managed directly by federal agencies or indirectly through state government. For example, the Clean Water Act Section 404 permit required for construction activities in federally navigable waters is obtained from the U.S. Army Corps of Engineers (ACOE). The DNR Division of Water, on the other hand administers the National Flood Insurance Program. The state also manages activities associated with reconstruction and maintenance of drains, dams, levees, and dikes, water withdrawals, and diversion of water outside the Great Lakes basin in Indiana.

The following are Indiana's water resource management authorities:

- Flood Control Act
- Flood Plain Management Act
- Administration of the National Flood Insurance Program
- Indiana Drainage Code establishing regulated drains
- Dam Inspection Program
- Indiana Great Lakes Water Diversion Legislation
- Indiana Water Shortage Plan
- Model Water Code: Reasonable Beneficial Use Assessment
- Registration of Significant Water Withdrawal Facilities
- Groundwater Emergencies Act
- Lake Preservation Act
- Indiana Conservancy Act

Natural Areas, Fisheries, Wildlife, and Native and Exotic Species

The DNR is the State of Indiana’s land holding agency with the power to acquire and manage lands for the management of natural habitats, fish and wildlife population, and for recreational opportunities for citizens of the state. The DNR protects and properly manages the fish and wildlife resources of Indiana through several mechanisms. The state designates and protects state endangered species through statute, permitting, regulating the filling, dredging, and alteration of wetlands and other special aquatic sites, and other protection activities including establishment of nature preserves, state parks, and fish and wildlife areas. The state also regulates the use and propagation of certain species that are exotic, pests, or invasive species that may negatively affect state fish and wildlife populations or commercial natural resource products. Additionally, the DNR is directed to regulate commercial fishing in Lake Michigan to protect the resource of fish for commercial and sport fishing.

The following are Indiana’s management authorities for natural areas, fisheries, wildlife, and native and exotic species:

- Section 401 Water Quality Certification Program
- Rule 5

- Flood Control Act
- Navigable Waterways Act
- Wetlands and Habitat Mitigation Nonrule Policy
- Wetland Conservation Guidelines
- Nature Preserves Law
- Uniform Conservation Easement Act
- Outstanding Rivers List Nonrule Policy
- Outstanding State Resource Waters Nonrule Policy
- Outstanding National Resource Waters Nonrule Policy
- Salmonid Waters Nonrule Policy
- Wild Animal Kill Law
- Classified Wildlife Habitat, Riparian Land, and Forest Programs
- Natural Areas Registry
- Indiana Forest Legacy Program
- Hunting and Trapping Licenses Program
- Sport and Commercial Fishing Licenses Program
- Nongame and Endangered Wildlife Program
- Rare and Endangered Insects and Plants List Nonrule Policy
- Exotic Mammals and Birds License
- Fish Importation Permit
- Aquaculture Permit
- Nuisance Species Importation Regulation
- Zebra Mussel Containment Nonrule Policy
- Pest and Pathogen Management Program

Recreation, Access, and Cultural Resources

The DNR manages natural and cultural resources for public recreation and access. The management of recreation, access, and cultural resources is accomplished by the development of public parks, recreation areas, hunting areas, fishing areas, and through the preservation of archeological and historical sites.

The following management authorities are used by the state to protect and manage recreational and cultural resources.

- Statewide Comprehensive Outdoor Recreation Plan
- Lake Michigan Marina Development Commission
- Indiana Port Commission
- Motorboat Operators License Program
- Boat Titling and Registration Program
- Watercraft Use Rules (including speed limits and swimming only areas)
- Historic Preservation Commission
- Artifacts or Burial Objects Protection Permit Program
- Administration of National Register of Historic Places
- Indiana State Register of Historic Places
- Indiana Historic Rehabilitation Tax Credit Program
- Section 106 Review
- Administration of the Abandoned Shipwreck Act

Economic Development

The state has several programs and authorities to manage and promote economic development. The state's transportation facilities and the infrastructure are managed to maintain existing economic sectors and to develop new economic development. The Lake Michigan region is also an important economic region due to its ability to provide water-borne transport through ports and for the concentration of energy facilities and industries. The state manages its ports and adjacent development to maintain efficient operations and for potential expansion. The state also actively manages the siting and development of major energy facilities and methods of storing and transporting energy resources. The management and promotion of economic development is accompanied by the responsibility to remediate pollution and redevelop brownfields and other underutilized sites.

The following are the primary management authorities that guide the state's role in economic development.

- Indiana Port Commission
- Utility Power plant Construction Act
- Indiana Utility Regulatory Commission
- Navigable Waterways Act
- Voluntary Remediation Program
- Brownfield Redevelopment Program
- Administration of the Federal Brownfields Tax Incentive Program

Pollution Prevention, Recycling, Reuse, and Waste Management

Industrialization and economic expansion are important components of the Indiana coastal region's economy. As the industrialization of the early twentieth century focused on expansion, today's need for economic development focuses on pollution prevention through environmentally and economically sound approaches. The state implements several techniques to promote pollution prevention, recycling, and reuse of resources. These techniques include managing the storage, handling, disposal, and transportation of solid and hazardous wastes. The state has also established programs to clean up previously unregulated hazardous waste disposal sites and underground storage tanks.

The following management authorities are used by the state to achieve and encourage pollution prevention, recycling, reuse, and waste management:

- Solid Waste Management Board
- Solid waste certification, monitoring, and reporting process
- Nonrule policy guidance through the Department of Environmental Management Hazardous Waste Program
- Permitting of land application of biosolids and industrial waste products
- Registration certification of waste tire storage or processing sites
- State Cleanup Program
- Hazardous Substances Response Trust Fund
- Emergency Response Program
- Emergency Response Order and Remediation Action
- Defense Environmental Restoration Program
- State Trustee Role in Natural Resource Damage Assessments
- Contingency plan for the Accidental Release of Petroleum in Lake Michigan

- Underground Storage Tank Release Detection, Prevention, and Correction Program
- Underground Petroleum Storage Tank Excess Liability Trust Fund
- Underground Storage Tank Grant Closure Program
- Indiana General Assembly Policy for Pollution Prevention
- Department of Environmental Management Office of Pollution Prevention and Technical Assistance
- Compliance and Technical Assistance Program
- State Annual Reporting of Toxic Releases Requirements
- Indiana Clean Manufacturing Technology and Safe Materials Institute
- Indiana Institute of Recycling
- Department of Commerce Recycling Market Development Program
- Indiana Recycling and Energy Development Board

Air Quality

In 1961, the State of Indiana enacted legislation to create the Air Pollution Control Board and authorize the Board to take actions necessary to cause the abatement of air pollution. However, significant progress in addressing air quality did not occur until the federal Clean Air Act of 1970 was passed. The Clean Air Act established national primary and secondary air quality standards. State implementation plans to achieve air quality standards are key to implementing the Clean Air Act.

The Indiana Air Pollution Control Board has developed detailed rules to address air quality including:

- Ambient air quality standards
- Episode Alert Levels
- Permit Review Standards
- Monitoring Requirements
- Opacity Standards
- Sulfur Dioxide Standards
- Volatile Organic Compound Standards
- New Source Performance Standards
- Motor Vehicle Emission and Fuel Standards
- Emission Standards for Hazardous Air Pollutants
- Lead Standards
- Asbestos Management at Schools
- Mobile Source Rules
- Acid Deposition Control
- Stratospheric Ozone Protection
- Attainment Status Designations for Counties
- Open Burning Rules
- Stage II Vapor Recovery on Gasoline Pumps in Nonattainment Areas
- Ozone Forecasting Program
- Sinter Plant Air Quality Standards
- Partners for Clean Air
- Smog Watch
- Indiana's Air Toxics Program
- Indiana Air Permitting Guide

Property Rights

An important issue in Northwest Indiana is property rights. Often transcending environmental and economic concerns, rights of individuals and businesses are considered by the state when state actions are contemplated.

The following management authorities are used by the state to protect property interests:

- Just Compensation Legislation
- Relocation Assistance Act
- Takings Analysis for New Rules
- Trespass Civil and Criminal Law
- Open Dumping of Garbage or Littering

## 2. Boundary

The Indiana coastal zone, referred to as the Coastal Program Area, includes both an inland and lakeward boundary. The lakeward boundary is the jurisdictional borders within Lake Michigan that Indiana shares with Illinois and Michigan. The inland boundary includes those areas that drain into Indiana's portion of Lake Michigan to the state border with Illinois and the LaPorte County line. The inland coastal program boundary, which is described in Chapter 3 of Part II, includes all shorelands subject to erosion or flooding, estuarine areas and wetlands, and other areas the use of which may directly and significantly affect Lake Michigan waters. The inland extent of the boundary is based on the natural watershed boundary, the hydrologic divide. However, to create an inland boundary that is easily identifiable in practical landmarks, the watershed boundary was modified to define a program boundary based on the U.S. Public Land System, Township Sections and major roads.

The Coastal Program Area encompasses a total of approximately 604 square miles of land and approximately 241 square miles of Lake Michigan. It covers the northern portions of Lake, Porter, and LaPorte Counties. At its greatest extent, the inland boundary is approximately 17 miles from the Lake Michigan shoreline and at its narrowest extent; the inland boundary is less than 2 miles inland. It is located in the northern portions of Lake, Porter and LaPorte Counties along the southern shore of Lake Michigan.

## 3. Coastal Areas of Significance

The LMCP recognizes areas that have unique qualities that either make them vulnerable or increase the competition for their use. These areas are defined as Coastal Areas of Significance. The LMCP provides for two designations of Coastal Areas of Significance: Areas of Particular Concern and Areas for Preservation and Restoration.

Areas of Particular Concern are broad groups of coastal areas that face similar challenges for which priorities can be identified. The LMCP discusses the primary challenges facing the areas, priority uses and activities for the areas, and criteria for their designation. The LMCP has designated the following general areas as Areas of Particular Concern: 1) areas of unique, scarce, fragile or vulnerable natural habitats; 2) areas of historical significance, cultural value, or substantial recreational value or opportunity; 3) areas of high natural productivity or essential habitat for living resources, including fish, wildlife, endangered species, and the various trophic levels in the food web critical to their well-being; 4) areas needed to protect, maintain, or replenish coastal lands or resources including coastal flood plains, aquifers

and their recharge areas, sand dunes, and offshore sand deposits; 5) areas where development and facilities are dependent upon the use of, or access to, coastal waters or areas of unique features for industrial or commercial uses or dredge spoil disposal; and 6) areas where if development were permitted, it might be subject to significant hazard due to storm, slides, floods, erosion, and settlement.

The second type of designation for Coastal Areas of Significance is as Areas for Preservation and Restoration (APR). These are specific sites that require protection and restoration for their conservation, ecological, or recreational values. APR designated sites are public or otherwise protected sites where the preservation and restoration of the area's values are or will be the dominant public policies. The APR designation helps guide resource managers to restore or preserve the specific ecological, or aesthetic values of these areas. These areas and a process for designation of significant areas are described in Chapter 8 of Part II.

## 4. Indiana Coastal Grants Program

The DNR is designated as the lead agency for administration of the LMCP, including the Coastal Grants Program. As a state participating in the federal Coastal Zone Management Program (CZMP), Indiana is eligible to annually receive funds from the National Oceanic & Atmospheric Administration (NOAA). Indiana determines what percentage of those funds will be used to administer the LMCP and what percentage will be available for competitive grants. Grants will be made to further the goals and objectives of the LMCP and assist in the implementation of the priorities and guidance developed annually through a public process. To accomplish this, the LMCP will host an annual public planning meeting to collect input on the next grant cycle's priorities and to identify emerging issues. The planning meeting will include agencies and organizations eligible to receive grants. The DNR will also form a stakeholders advisory group to provide input for the Coastal Grants Program. The stakeholders advisory group that will consist of representatives from northwest Indiana and will be geographically representative as well as representative of the broad range of interests and experience in the coastal region.

The purpose of the Indiana Coastal Grants Program is to preserve, protect, restore, and where possible, to develop the resources of the coast for this and succeeding generations and to achieve wise use of the land and water resources of the coastal region, giving full consideration to ecological, cultural, historic and esthetic values as well as to needs for economic development. The LMCP seeks out social, economic, and environmental solutions that balance use and protection of the coast's valuable, yet fragile, resources.

Applications will be reviewed by 'Technical Review Teams' which will comment on expertise-specific criteria including: the technical soundness of the proposal in terms of design and cost-effectiveness; the appropriateness of the budget request; and the qualifications and ability of the applicant to manage and implement the proposal, carry out the tasks, and deliver the products. All eligible applications to the LMCP for 306(A) projects will undergo environmental review by the DNR. Environmental review includes evaluation by the Divisions of Fish and Wildlife, Nature Preserves, Water, and Historic Preservation and Archaeology for potential adverse effects to fish, wildlife, botanical resources, rare natural communities, fish and wildlife habitat, publicly managed properties, state permit requirements, and historic and archaeological resources. Environmental review will also include an endangered species review to identify if there is a need for additional coordination with any federal entities or for consultation under the federal Endangered Species Act. The Director of the DNR or designee will conduct final selection of applications for the state. The LMCP will administer the approved grants, receive financial and progress reports from applicants, and provide technical assistance and review throughout the project.

Funds available for the Coastal Grants Program will be based on both state and federal funds made available that year for the LMCP. Three categories were created to group similar grant projects and provide a fair distribution across project types: Coastal Natural Resources Protection and Restoration; Coastal Community Enhancement and Sustainability; and Emerging Issues.

Coastal grants may be allocated to a state agency, local government agency, area-wide agency, regional agency, interstate agency, and with certain restrictions, to a non-profit organization. The State is responsible for ensuring that the funds are applied in furtherance of the State's approved coastal program.

### 5. Other Special Planning Requirements of the CZMA

The CZMA requires that states specifically address the issue of shoreline erosion, shorefront access, and energy facility siting as part of program development. The LMCP responses to these requirements are found in Chapters 9, 10, and 13 of Part II.

## B. CHANGES THE PROGRAM WILL MAKE

Existing state authorities will be used to implement and enforce the Indiana Lake Michigan Coastal Program (LMCP). The Program will result in changes in the way coastal resources are managed in the state by improving coordination and consistency of all state actions which could affect coastal resources, by providing procedures to resolve conflicts between state agencies and their programs, and by enhancing implementation of core programs addressing hazards, wetlands, and access.

Indiana's objective in developing a coastal program is to establish a comprehensive, coordinated approach for the protection, preservation and orderly development of the state's coastal resources. The Indiana LMCP will perform the following: administer the Coastal Grants Program, complete consistency reviews, and seek opportunities to develop partnerships among federal, state, and local programs. Examples of general tasks performed by the LMCP include program administration, federal consistency review, grant administration, LMCP review and evaluation, networking with state and local agencies, and outreach and education. Specific management activities, including the operation of Indiana's core regulatory programs, are conducted by a variety of individual agencies.

The DNR Division of Soil Conservation is the lead entity for reviewing state and federal agency actions to ensure consistency with the LMCP. Chapter 4 of Part II of the document describes the procedures that the Division of Soil Conservation will use to implement state consistency requirements. These procedures include the Indiana Environmental Protection Act and Memoranda of Understanding (MOU) between DNR, IDEM, State Emergency Management Agency, the Natural Resources Commission, and the Office of Environmental Adjudication. These MOUs provide for specific methods of conflict resolution for disagreements between agencies. The MOUs can be found in Appendix D. In addition, section 307 of the CZMA requires that federal agency actions be consistent with the LMCP, once it is approved by OCRM. Chapter 11 of Part II describes how Indiana will implement the federal consistency provisions of the CZMA.

The CZMA provides incentives and a national direction to assist states in addressing coastal issues and problems. The following are the principal anticipated effects of federal program approval:

- Federal section 306 grants estimated to total approximately $900,000 annually will be made to Indiana to assist in program implementation activities by the state and local entities; and

- State implementation of the federal consistency provisions of the CZMA to ensure that federal activities, federally licensed and permitted activities, and federal assistance to state and local governments are consistent with the LMCP.

A more detailed description of the effects of federal approval of the LMCP is provided in Part III of this document.

## C. THE FEDERAL COASTAL ZONE MANAGEMENT ACT

In response to intense pressure on coastal resources, and because of the importance of coastal areas of the United States, Congress passed the Coastal Zone Management Act of 1972 as amended [CZMA], (16 USC 1451). The program is administered by the Secretary of Commerce, who in turn has delegated this responsibility to the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean and Coastal Resource Management (OCRM). The Act authorizes a federal program to encourage coastal states and territories to develop comprehensive coastal programs. Currently, 33 states and territories have coastal programs approved by the Assistant Administrator of the National Ocean Service.

The CZMA affirms the national interest in the effective protection and careful development of the coastal zone by providing assistance and encouragement to coastal states to voluntarily develop and implement coastal programs for their coastal areas. The CZMA authorizes financial assistance grants under section 305 for program development and section 306 for program implementation to provide coastal states and territories with the means for achieving these objectives. The Section 305 program development section was re-authorized by Congress in the 1990 amendments to the CZMA (PL 101-508, November 5, 1990). OCRM awarded the Indiana DNR a section 305 grant of $166,000 on October 1, 1993, $200,000 on October 1, 1994, $200,000 on July 1, 1997 and $200,000 in July 1999 to develop the LMCP and conduct public participation activities during program development and review.

Sections 305, 306, and 307 of the CZMA and implementing regulations published on March 28, 1979 (44 CFR Part 18595) as codified at 15 CFR Part 923, provide the requirements and procedures for state coastal program development and federal approval. In summary, the requirements for program approval are that a state develop a coastal program that among other things:

1. Identifies and evaluates those coastal resources recognized in the Act that require management or protection by the state or territorial government;

2. Re-examines existing policies or develops new policies to manage these resources. These policies must be specific, comprehensive, and enforceable, and must provide an adequate degree of predictability as to how coastal resources will be managed;

3. Determines specific uses and special geographic areas that are to be subject to the coastal program, based on the nature of identified coastal concerns. Uses and areas subject to management should be based on resource capability and suitability analyses and socio-economic considerations;

4. Identifies the inland and seaward areas subject to the coastal program;

5. Provides for consideration of the national interest in planning for the siting of facilities; and

6. Includes sufficient legal authorities and organizational structure to implement the program and to ensure conformance to it.

In arriving at these substantive aspects of the coastal program, states are obligated to follow an open process which involves providing information to and considering the interests of the general public, interest groups, local governments, and regional, state, interstate, and federal agencies.

Section 303 of the CZMA provides guidance on specific national objectives that warrant full consideration during the implementation of approved state coastal programs.

Section 305 of the CZMA as amended by PL 101-508 in 1990 and subsequent appropriations language authorized annual grants to states desiring to develop a coastal program.

After its coastal program receives federal approval, the state is then eligible for annual grants under section 306 to implement its coastal program. Section 306A of the CZMA also provides that states may use a portion of their section 306 awards for low cost construction projects that result in the preservation of important natural areas, improved public access, or renewal of urban waterfronts.

Section 307 contains the federal consistency provisions of the CZMA to ensure that federal actions are consistent with the state's federally approved coastal program. Paragraphs (1) and (2) of section 307(c) require that federal activities and development projects in or directly affecting the coastal zone be consistent to the maximum extent practicable with a federally approved state coastal program. Subparagraphs (A) and (B) of section 307(c) require that federally licensed and permitted activities affecting the coastal zone also are consistent with the federally approved state program. Section 307(d) requires federal assistance to state and local governments for projects affecting the coastal zone to be consistent with federally approved state coastal programs. Federal regulations implementing section 307 are found at 15 C.F.R. Part 930.

Section 309, as amended by PL 101-508 in 1990, establishes a coastal enhancement grant program. This section provides that a portion of section 306 funds is available to states to develop program changes, which strengthen their CZM program's ability to address particular coastal issues. State efforts to seek such improvements are meant to focus on priorities based on a self-assessment of the nine objectives listed in section 309. These objectives include, among others, stronger wetland protection, improved management of coastal hazards and additional public access.

Section 312 directs the Secretary to evaluate the performance of state coastal programs on a continuing basis. OCRM formally reviews the implementation of each state program on a three-year cycle.

Section 315 establishes a National Estuarine Research Reserve System to preserve a representative series of representative estuarine areas for long-term scientific and educational purposes.

The Coastal Zone Reauthorization Amendments of 1990 (CZARA) established a new Coastal Nonpoint Pollution Control Program (CNPC), in addition to updating the CZMA. The State of Indiana has agreed to submit a complete 6217 program within 30 months of program approval (See Chapter 14). After Indiana submits its coastal nonpoint program, NOAA and U.S. Environmental Protection Agency (EPA) will make a final determination regarding its compliance with section 6217.

## D. CROSS REFERENCE TO PROGRAM REQUIREMENTS

| CZMA Section | Requirement | CZMA Approval Regulations | Program Document |
|---|---|---|---|
| 306 (d)(1) | Indiana's Lake Michigan Coastal Program contains policies to adequately manage all uses with direct and significant impacts on coastal waters and ensure protection of those resources and areas that make the Indiana coast a unique, vulnerable or valuable area. | 15 C.F.R. §923.3 | Chapter 5 |
| 306(d)(1) | Indiana's Lake Michigan Coastal Program was developed after notice and with the opportunity for full participation by federal agencies, state agencies, local governments, regional organizations, port authorities, and other interested parties and individuals, public and private. | 15 C.F.R. §923.3 | Chapters 6 and 15 Appendices E and F, Part V |
| 306(d)(2)(A) | Indiana's Lake Michigan Coastal Program includes sufficient inland, seaward, and interstate boundaries. | 15 C.F.R. §923.31-923.34 | Chapter 3 Appendix C |
| 306(d)(2)(B) | Indiana's Lake Michigan Coastal Program identifies the land and water uses subject to the management program. | 15 C.F.R. §923.11 | Chapter 5 |
| 306(d)(2)(C) | Indiana's Lake Michigan Coastal Program designates Areas of Particular Concern. | 15 C.F.R. §923.21-23 | Chapter 8 |
| 306(d)(2)(D) | Indiana's Lake Michigan Coastal Program identifies the means by which the state will exert control over the defined land and water uses. | 15 C.F.R. §923.40-43 | Chapter 4 and 5 |
| 306(d)(2)(E) | Indiana's Lake Michigan Coastal Program contains broad guidelines on priorities of uses in particular areas, including those uses of lowest priority. | 15 C.F.R. §923.21 | Chapter 5 and 8 |
| 306(d)(2)(F) | Indiana's Lake Michigan Coastal Program includes a description of the organizational structure proposed to implement the program, including the responsibilities and interrelationships of local, area wide, state, regional, and interstate agencies in the management process. | 15 C.F.R. §923.46 | Chapter 4 |

| CZMA Section | Requirement | CZMA Approval Regulations | Program Document |
|---|---|---|---|
| 306(d)(2)(G) | Indiana's Lake Michigan Coastal Program includes a definition of the term beach, and a planning process for the protection of, and provision of access to, public beaches and other public coastal areas. | 15 C.F.R. §923.24 | Chapter 9 |
| 306(d)(2)(H) | Indiana's Lake Michigan Coastal Program includes a planning process for energy facilities likely to be located in, or which may significantly affect, the coastal zone, including a process for anticipating the management of the impacts from such facilities. | 15 C.F.R. §923.13 | Chapter 13 |
| 306(d)(2)(I) | Indiana's Lake Michigan Coastal Program includes a planning process for assessing the effects of, and studying and evaluating ways to manage the impacts of, shoreline erosion and for restoring areas adversely affected by such erosion. | 15 C.F.R. §923.25 | Chapter 10 |
| 306(d)(3)(A) | The state has coordinated Indiana's Lake Michigan Coastal Program with local, area wide, and interstate plans applicable to areas within the coastal zone existing before 1/1/2001. | 15 C.F.R. §923.56 | Chapter 6 |
| 306(d)(3)(B) | The state has established an effective mechanism for continuing consultation and coordination between the lead agency and local governments, interstate agencies, regional agencies, and area wide agencies within the coastal boundary. | 15 C.F.R. §923.57 | Chapters 4, 6, and 7 |
| 306(d)(4) | The state has held adequate public hearings during the development of Indiana's Lake Michigan Coastal Program. | 15 C.F.R. §923.58 | Chapters 6 and 15 |
| 306(d)(5) | The Governor has reviewed and approved the Indiana's Lake Michigan Coastal Program and certifies that it contains adequate authorities. | 15 C.F.R. §923.48 | Gubernatorial Letter, Part II |
| 306(d)(6) | The Governor has designated a lead coastal agency. | 15 C.F.R. §923.47 | Gubernatorial Letter, Part II |
| 306(d)(7) | The state is organized to implement Indiana's Lake Michigan Coastal Program. | 15 C.F.R. §923.46 | Chapter 4 |

| CZMA Section | Requirement | CZMA Approval Regulations | Program Document |
|---|---|---|---|
| 306(d)(8) | Indiana's Lake Michigan Coastal Program provides for adequate consideration of the national interest. | 15 C.F.R. §923.52 | Chapters 12 and 13 |
| 306(d)(9) | Indiana's Lake Michigan Coastal Program includes a program by which specific areas may be designated for the purpose of preserving or restoring them for their conservation, recreational, ecological, historical, or aesthetic values. | 15 C.F.R. §923.22 | Chapter 8 |
| 306(d)(10)(A) and (B) | The state has authority for the management of the coastal zone in accordance with Indiana's Lake Michigan Coastal Program, including the power to: a) administer land use and water use regulations to control development to ensure compliance with Indiana's Lake Michigan Coastal Program; b) resolve conflicts among competing uses; and c) acquire fee simple and less than fee simple interests in land, waters, and other property through condemnation or other means, if necessary. | 15 C.F.R. §923.41 | Chapters 4 and 5 |
| 306(d)(11) | Indiana's Lake Michigan Coastal Program uses any or a combination of the following techniques for control of land uses and water uses within the coastal zone: a) state establishment of criteria and standards for local implementation, b) direct state land and water use planning and regulation; and/or c) state administrative review of development plans, projects, or land and water use regulations. | 15 C.F.R. §923.41-923.44 | Chapter 5 |
| 306(d)(12) | Indiana's Lake Michigan Coastal Program ensures that local land use and water use regulations within the coastal boundary do not unreasonably restrict or exclude land uses and water uses of regional benefit. | 15 C.F.R. §923.12 | Chapter 12 |

| CZMA Section | Requirement | CZMA Approval Regulations | Program Document |
|---|---|---|---|
| 306(d)(13) | Indiana's Lake Michigan Coastal Program provides for an inventory and designation of areas that contain one or more coastal resources of national significance and specific and enforceable standards to protect such resources. | No regulations | Chapters 5 and 12 |
| 306(d)(14) | Indiana's Lake Michigan Coastal Program provides for public participation in permitting processes, consistency determinations, and other similar decisions. | No regulations | Chapter 5, 7, 8, 11, and 13 |
| 306(d)(15) | Indiana's Lake Michigan Coastal Program ensures that all state agencies will adhere to the program. | No Regulations | Chapter 4 and Appendix D |
| 306(d)(16) | Indiana's Lake Michigan Coastal Program contains enforceable policies and mechanisms to implement applicable requirements of the 6217(g). | Guidance on Coastal Nonpoint Source Program issued January 1993. | Chapter 14 |
| 307(b) | Consideration of federal agency views | 15 C.F.R. §923.51 | Appendix E and Chapter 15 |
| 307( c) & (d) | Federal consistency procedures | 15 C.F.R. §923.53 | Chapter 11 |
| 307(f) | Incorporation of federal air and water quality standards | 15 C.F.R. §923.45 | Chapter 5 |

# PART II: Lake Michigan Coastal Program Document

## Letter From Governor O'Bannon

**OFFICE OF THE GOVERNOR**
**INDIANAPOLIS, INDIANA 46204-2797**

**FRANK O'BANNON**
**GOVERNOR**

April 23, 2002

Admiral Conrad C. Lautenbacher, Jr.
Under Secretary for Oceans and Atmosphere
and Administrator
National Oceanic and Atmospheric Administration
HCHB Room 5128
14th and Constitution Avenue
Washington, D. C. 20230

Dear Admiral Lautenbacher:

It is with great pleasure that I submit the Indiana Lake Michigan Coastal Program to the National Oceanic and Atmospheric Administration for approval. The State of Indiana looks forward to joining the Coastal Zone Management Program and its network of coastal states and territories. The LMCP will enhance the state's role in planning for and managing natural and cultural resources in the coastal region and will support partnerships between federal, state, and local agencies and organizations.

I have reviewed and approve implementation of the Indiana Lake Michigan Coastal Program, as presented herein. I have also determined that the State of Indiana has the authority and the organizational capability to implement the Lake Michigan Coastal Program. The Indiana Department of Natural Resources is designated as the lead state agency to implement the coastal program and to receive and administer grants under the Coastal Zone Management Act.

This new partnership with the Coastal Zone Management Program renews Indiana's commitment to conserve, restore, and wisely manage Indiana's Lake Michigan resources. If you need any further assistance during the review period, please contact John Goss, Director of the Department of Natural Resources, at (317) 232-5918.

Sincerely,

Frank O'Bannon

Frank O'Bannon

FOB/BAC/nlm

# Chapter 1: Indiana Lake Michigan Coastal Program Overview

The purpose of the Indiana Lake Michigan Coastal Program (LMCP) is to enhance the State's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local government agencies and organizations. The LMCP relies upon existing laws and programs as the basis for achieving its purpose.

The Indiana Department of Natural Resources (DNR) will be the lead agency to implement the LMCP. Within the DNR, the LMCP is located within the Division of Soil Conservation. The LMCP will support activities that achieve the following goals in the coastal region:

- Protect and restore significant natural resources;
- Prevent the loss of life and property in coastal hazard areas;
- Improve public access for recreational purposes;
- Protect and restore important historic and cultural resources;
- Improve government coordination and policy and decision making;
- Prevent, reduce, or remediate nonpoint source pollution that affects coastal waters;
- Revitalize urban waterfronts and ports; and
- Provide for priority water dependent uses.

These goals will be achieved through a cooperative partnership with the federal Coastal Zone Management Program (CZMP). The Coastal Zone Management Act of 1972 was enacted by Congress to create a voluntary partnership between federal, state, and local governments. The national program seeks to sustain coastal ecosystems, sustain coastal communities, and improve government efficiency. By forming a cooperative partnership with the CZMP, Indiana will benefit in the following ways:

*Financial assistance*- approximately $900,000 per year will be allocated to implement the LMCP. In addition, Indiana will qualify to apply for additional funds available through the CZMP, including the Coastal Zone Enhancement Awards as described in Chapter 7.

*Technical assistance*- training and workshops coordinated with other state, federal and local agencies and organizations to address common coastal issues; data and research information needs would become available to Indiana.

*Federal consistency*- Indiana would be able to require that the actions of federal agencies in the coastal zone be consistent with the LMCP document.

*Participation in a network of coastal professionals*- Indiana would be able to participate in the many programs that seek to address common problems for coastal states. Shoreline, stream bank, and bluff erosion, aquatic nuisance species, harbor development and dredging issues, permit simplification processes, data sharing, public participation processes, and the use of technology are issues where programs have shared their expertise through the CZMP.

This document includes information about how Indiana meets the requirements established by the Coastal Zone Management Act utilizing a network approach of existing state laws and programs that are implemented by a number of different governmental agencies. The LMCP is a new tool to implement existing programs and to provide funding for unique or under-funded projects.

## Major Components of the LMCP

### Based on Existing Policies and Laws

The LMCP was developed on the strength of Indiana's existing policies and laws that address land and water uses and resource protection. The LMCP document serves as a comprehensive reference that identifies entities that carry out existing programs, policies, and laws to manage coastal resources. The program document also serves as a reference for the identification of partnership and coordination opportunities. By utilizing the combined resources of federal, state, and local governments and organizations, the need for sustainability and balance between resource protection and economic growth can be addressed. Through an extensive public process, 10 issue-areas were identified. Indiana's existing policies and laws were detailed for each of these areas in Chapter 5 of the program document.

- Procedural Framework
- Coastal Hazards
- Water Quality
- Water Quantity
- Natural Areas, Fisheries, Wildlife, and Native and Exotic Species
- Recreation, Access, and Cultural Resources
- Economic Development
- Pollution Prevention, Recycling, Reuse, and Waste Management
- Air Quality
- Property Rights

### Indiana Lake Michigan Coastal Grants Program

By establishing a cooperative partnership with the CZMP, the LMCP will be able to administer a grants program that seeks out opportunities to work with state and local agencies and other organizations to accomplish its goals. The Coastal Grants Program will also facilitate a process in which the public can participate in the identification of priorities for the coastal region.

The Coastal Grants Program will make funding available through an annual competitive grants process. The LMCP will hold annual planning meetings to collect input on each year's priorities and to identify emerging issues. The planning meeting will be open to agencies and organizations eligible to receive coastal grants. The DNR will also form a stakeholders advisory group to provide input for the Coastal Grants Program. The stakeholders advisory group will consist of representatives from northwest Indiana and will be geographically representative as well as representative of the broad range of interests and experience in the coastal region.

The Coastal Grants Program is organized into three categories:

- Coastal Natural Resources Protection and Restoration
- Coastal Community Enhancement and Sustainability
- Emerging Issues

Chapter 7 provides a detailed description of the Coastal Grants Program and other mechanisms associated with funding the implementation of the LMCP.

## Coastal Program Area

The Coastal Program Area defines the lands and waters eligible for financial and technical assistance through the LMCP. Based on public participation and comment, the proposed program boundary was established to approximate the region's watershed. The watershed encompasses a majority of the area that drains into Indiana's portion of Lake Michigan through it's rivers, streams, ditches, wetlands, lakes, and groundwater. A watershed approach provides a comprehensive approach to planning for and managing natural resources that focuses on producing environmental results while incorporating the communities that depend on those natural resources. A watershed approach can also leverage financial and other resources, improve coordination among intergovernmental jurisdictions, and reduce duplication of efforts and conflicting actions.

The program boundary is located in the northern portion of Lake, Porter, and LaPorte counties and extends into the Lake to the jurisdictional border with Illinois and Michigan. It excludes lands owned, leased, or held in trust for the federal government. At its widest extent, the boundary extends away from the shoreline 17 miles to the Crown Point area and at its narrowest point, less than 2 miles, just north of Hudson Lake in LaPorte County. The boundary follows the 45-mile shoreline and the approximately 54 miles along an east-west trajectory across the Valparaiso Moraine.

Cities and towns in the Coastal Program Area include:

- Whiting
- East Chicago
- Hammond
- Gary
- Highland
- Munster
- Dyer
- Schererville
- Griffith
- Crown Point
- Merrillville
- Lake Station
- New Chicago
- Hobart
- Ogden Dunes
- Dune Acres
- Burns Harbor
- Porter
- Portage
- Valparaiso
- Chesterton
- Beverly Shores
- Town of Pines
- Michigan City
- Long Beach
- Michiana Shores
- Trail Creek

*Please refer to the detailed description of the Coastal Program Area in Appendix C to determine if a particular area is included.

Included within the boundary are lands subject to lake flooding and erosion, estuaries and wetlands, ecologically significant areas formed by glacial Lake Michigan, coastal recreation areas, and areas of cultural and historic significance to the region. A detailed description of the Coastal Program Area can be found in Chapter 3 and in Appendix C.

## Coastal Program Network

There are numerous state and local entities that are responsible for managing resources in the coastal region. The role of these entities will remain unchanged. The LMCP sets forth a framework, based on existing policies, laws, and programs, that links existing agencies and laws into a comprehensive system. Through networking among members, state and local perspectives on the management of coastal resources can be integrated. The network will lead to improved coordination, clear establishment of priority issues, and a well-focused effort to meet those priorities.

Coastal Program Network Roles:

*Local Governments* not only develop and enforce local ordinances, but also act as delegates for several state programs such as emergency response and floodplain management. Local governments are

also active in economic development and land use issues in their communities. Through the LMCP, local units of government will have an opportunity to obtain financial and technical assistance to develop and implement inventories, plans, and community projects.

*State Agencies* implement a wide range of programs related to the management of coastal resources. Through the LMCP document, the roles of major state agencies, existing policies and laws under their responsibility, and provisions for public participation in State decision making are detailed. The program document can therefore aid in the identification of state agencies that address various management issues. Additionally, coordination, simplification, and streamlining will be encouraged through the implementation of the LMCP.

*Federal Agencies* conduct many activities in the coastal region. By establishing a cooperative partnership with the CZMP, Indiana's priorities will be represented at the federal level. Federal agencies will be able to work directly with the Coastal Program Network to reduce duplication of effort, improve coordination of projects, and to better understand priorities developed by the network.

**Federal Consistency**

Federal actions are usually exempt from state laws and regulations. Once Indiana's LMCP is approved by the CZMP, federal actions which affect coastal resources must be conducted consistently to the maximum extent practicably with the existing state laws detailed in the program document. Actions of federal agencies subject to federal consistency include direct activities, federal licenses, permits, or other required federal approvals to non-federal applicants, and financial assistance programs. Federal consistency encourages early coordination and participation on federal actions that affect the Coastal Program Area. A detailed description of Federal Consistency can be found in Chapter 11.

**Coastal Areas of Significance**

Some coastal areas are particularly significant or have special conditions that warrant increased attention. These areas are distinguished by either their unique coastal-related qualities or the intense competition for use of their resources. The coastal region boasts many existing initiatives that identify and address significant areas. The LMCP will use the process of identifying Coastal Areas of Significance to seek out these existing initiatives and partnership opportunities. State agencies, local governments, organizations, and the general public can nominate coastal Areas of Significance.

Identification of Coastal Areas of Significance will bring heightened attention to the areas' special conditions. In most cases, sufficient management authorities and regulations are already in place. Therefore the solution is not to create additional agencies or regulations, but to focus and coalesce existing management efforts. To accomplish this, Coastal Areas of Significance will be prioritized within the Coastal Grants Program, will receive heightened attention toward improving interagency cooperation, technical assistance, and supporting research and local planning.

Chapter 8 describes Coastal Areas of Significance through two categories:

*Areas of Particular Concern (APC)*- are identified as broad groups of coastal areas that face similar problems for which priorities can be defined. These areas are significant for their ecological, recreational, historic, cultural, or economic values. The LMCP document describes the primary issues facing the area, guidelines on priority uses of these areas, and criteria for identification. The following are categories of APC:

- Areas of unique, scarce, fragile, or vulnerable natural habitats

- Areas of historical significance, cultural value, or substantial recreational value or opportunity
- Areas of high natural productivity or essential habitat for living resources, including fish, wildlife, endangered species, and the various trophic levels in the food web critical to their well-being
- Areas needed to protect, maintain, or replenish coastal lands or resources including coastal flood plains, aquifers and their recharge areas, sand dunes, and offshore sand deposits
- Areas where development and facilities are dependent upon the use of, or access to, coastal waters or areas of unique features for industrial or commercial uses or dredge spoil disposal
- Areas where if development were permitted, it might be subject to significant hazard due to storm, slides, floods, erosion, and settlement

*Areas for Preservation and Restoration (APR)*- are specific areas that require protection or restoration for their conservation, ecological, or recreational values. These are public or otherwise protected sites where the preservation and restoration of the area's unique values are or will become the dominant public policies. Although funds may also be used to acquire APR, Indiana remains sensitive to the potential impacts on local economies that might result.

**Summary**

The LMCP represents the culmination of many years of effort by local, state, and federal agencies, with substantial participation and contribution by local citizens and stakeholder groups. It also represents a significant step in Indiana's efforts to develop a cooperative partnership under the Coastal Zone Management Act. However, this program document is a dynamic plan that will, even following approval by the Governor and CZMP, continue to be updated and modified to reflect the priorities of Indiana's coastal region. The LMCP will be regularly enhanced through continued public participation so that it can achieve its purpose to enhance the State's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local government agencies and organizations.

# Chapter 2: Indiana's Lake Michigan Coastal Region

## Physical Environment

### Climate

Lake Michigan, the second largest of the Great Lakes, is the only Great Lake entirely within the United States. However, because of movement of fish between Lake Michigan and Lake Huron and of its discharge to Lake Huron, Lake Michigan is important internationally. Lake Michigan is 307 miles (494 km) in length and 118 miles (190 km) in width. With an average depth of 279 feet (85 m), Lake Michigan holds 1,180 cubic miles (4,920 cubic km) of water with a retention time of 99 years.[1] The temperate southern basin spans Illinois, Indiana, and Michigan and contains highly urbanized areas. Indiana borders 45 miles (72.5 kilometers) of Lake Michigan's southern basin. The southern basin is relatively smooth with a contour sloping to a maximum depth of approximately 558 feet (170 m).[2]

The presence of Lake Michigan alters the local climate in northwest Indiana. Although modifications of climate are most pronounced within a mile or two of the shore, several lake-effect features extend about 25 miles (15.5 km) inland.[3] The lake significantly influences the entire Lake Michigan region in Indiana.

Compared to areas of similar latitude, Northwest Indiana can experience warmer falls, cooler springs, higher humidity, increased fogs, winter cloudiness, and higher snow fall. The most critical factor producing these climate modifications is the slower change of the lake's surface water temperature relative to the change of the adjacent land's surface temperature. The normal annual ambient temperature averages 50° Fahrenheit (10° C). Normal seasonal temperature averages 49° Fahrenheit (9.5 C) in spring, 72° Fahrenheit in summer (22° C), 54° in autumn (12° C) and 27° in winter (-2.7 C).[4]

### Geology and Soils

The geology and soils of the Lake Michigan drainage basin were created during the late Pleistocene and Holocene Epochs. "During the Pleistocene Epoch, the continental glaciers repeatedly advanced over the Great Lakes region from the north. The first glacier began to advance more than a million years ago. As they inched forward, the glaciers, up to 6,500 ft (2,000 m) thick, scoured the surface of the earth, leveled hills, and altered forever the previous ecosystem."[5] As the glaciers retreated, sand, silt, clay and boulders were deposited and large volumes of meltwater formed glacial lakes.

Malott (1922) [6] divided Indiana into nine physiographic regions according to topography and the effect of glaciers on the landscape. The Lake Michigan Region lies within the extreme northwestern part of the Northern Lake and Moraine Region and includes the northern part of the Valparaiso Morainal Area and the entire Calumet Lacustrine Plain.[7] During the late Wisconsin Age, ancestral Lake Michigan advanced

[1] United States Environmental Protection Agency and Government of Canada, The Great Lakes An Environmental Atlas and Resource Book, (1995).
[2] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, (1994).
[3] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p.23 (1994).
[4] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p.25 (1994).
[5] United States Environmental Protection Agency and Government of Canada, The Great Lakes An Environmental Atlas and Resource Book, p. 7 (1995).
[6] Malott, C. A., 1922, The physiography of Indiana, in Indiana Department of Conservation, Handbook of Indiana Geology: Division of Geology.
[7] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 31 (1994).

across the coastal region. As the glacial ice retreated about 12,000 years ago, fluctuating lake levels in combination with wind and wave actions contributed to the formation of the physiography of the coastal area.

The Valparaiso Moraine is the oldest end moraine in the Lake Michigan Region. As ancestral Lake Michigan advanced across the region, the Valparaiso Moraine formed along the limits of the glacial ice. The crest of the moraine forms most of the drainage divide between the Kankakee River Basin to the south and the Lake Michigan Region to the north.[8]

The Calumet Lacustrine Plain lies between the Valparaiso Morainal Area and Lake Michigan. The plain ranges in elevation from about 580 feet (177 m) at the present shoreline to as much as 760 feet (232 m) above mean sea level (m.s.l.) at dune-capped beach ridges.[9] The Indiana Dunes National Lakeshore and the Indiana Dunes State Park in northern Porter County, areas where the physiography is relatively unaltered, served as research sites where data was collected on the major physiographic features in the Calumet Lacustrine Plain.

The Calumet Lacustrine Plain consists of a topography referred to as ridge and swale; this topography is characterized as relict dune-capped beach ridges separated by extensive interridge marshes. Three relict beach ridges mark semi-stable shorelines of ancestral Lake Michigan during its late Pleistocene and Holocene history.[10] The Glenwood Beach, Calumet Beach and Toleston Beach occur within the Calumet Lacustrine Plain.

The Glenwood Beach is a relict beach that occurs on the lakeward side of the Valparaiso Moraine. Although the beach complex is a discontinuous ridge, Glenwood Beach is the highest dune and beach complex in the Lake Michigan region. The crest of the dune and beach complex has an average elevation of about 650 feet (198 m) above m.s.l.[11]

The Calumet Beach is adjacent to the Glenwood Beach, on its lakeward side. However, it truncates Glenwood Beach near the town of Tremont in Porter County. Dune-capped areas of the Calumet Beach have an average elevation of about 630 feet (192 m) above m.s.l. and the foreshore deposits have an average elevation of 607 feet (185 m) above m.s.l. Calumet Beach deposits consist of dune sediments overlying beach and nearshore sediments.[12]

Closest to Lake Michigan and therefore the youngest dune and beach complex is the Toleston Beach. The landward part of this complex consists of linear ridges of fused cone-shaped or parabolic dunes separated by interdunal wetlands, and the lakeward portion is comprised of large dome-shaped and small parabolic dunes, as well as over 150 beach ridges in its western part. Elevations at the top of large domal dunes are as much as 750 feet (229 m) above m.s.l. Foreshore, upper shoreface and back-barrier lacustrine deposits occur in the internal core of the complex. The top of the foreshore sequence of the Toleston Beach ranges from 597 to 603 feet (182 m to 184 m) above m.s.l. Modification of the Toleston Beach is still occurring in the eastern part of the region because of the reorientation of dominant wind direction across Lake Michigan.[13]

[8] Id.
[9] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 32 (1994).
[10] Id.
[11] Id.
[12] Id.
[13] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 35 (1994).

Today, the lakebed of southern Lake Michigan begins at the shoreline with sand. Gravel occurs from 50 to 100 feet deep and in the deep parts of the lake, mud predominates.[14] The Calumet Lacustrine Plain has many wetlands that occur in the swales between beach ridges. In addition to wetlands formed due to a gentle relief, wetlands formed in wide floodplains and as temporary ponds.

## Hydrologic Resources and Changes in the Lake Michigan Basin in Indiana

### Lakes

Many fresh water lakes lie within the Lake Michigan region. Lakes were formed through depressions carved by the glaciers, buried glacial ice, inter-ridge swale depressions, isolation of old river channels that became oxbow lakes, and artificially created pits and impoundments. The two largest artificial impoundments in the coastal region are Lake George in Hobart and Lake Louise in west Central Porter County. "An unknown number of lakes in the region have been totally destroyed or greatly diminished in size by drainage or infilling."[15] Three lakes were known to exist at the western edge of the Calumet lacustrine plain, Wolf, George, and Berry Lakes.

Only Wolf Lake remains primarily intact today. Wolf Lake once flowed north into Lake Michigan. Many early accounts of the lake prior to extensive settlement describe a haven of wildlife and natural beauty.[16] Wolf Lake today consists of seven interconnected, artificially divided basins with their center along the Indiana-Illinois state line. The lake has a surface area of approximately 385 acres and a maximum depth of approximately eight feet. The City of Hammond owns the majority of Indiana's Wolf Lake shoreline, which supports a city beach and park. Also in Hammond is George Lake. Once a much larger lake, George Lake is now a 78-acre shallow lake, having a maximum depth of approximately 12 feet.

An important oxbox lake is located at Kennedy Park in Hammond. This lake was formally part of the Little Calumet River and formed when a loop of the river was levied and excavated. The levee separated the lake from the river and a small culvert connects both bodies of water at normal water levels. Lagoons were also formed by modification of the Grand Calumet River. Marquette Park Lagoons, once the mouth of the Grant Calumet River, is a 25.6-acre lake partially owned by the City of Gary and by the Indiana Dunes National Lakeshore. Marquette Park Lagoons are divided into two basins. The western lagoon is located partially on U.S. Steel property. This lagoon is connected to Marquette Park by a shallow channel.

Impoundments have been created at Lake George in Hobart and Lake Louise near Valparaiso. Lake George is an impoundment of the Deep River originally created to power a gristmill. It is the largest lake in the region with a surface area of approximately 270 acres. Lake Louise is the second largest lake with a surface area of 228 acres. It was created by an impoundment of Salt Creek and is privately owned.

Two borrow pit lakes were created by the construction of the interstate system. Grand Boulevard Park Lake at Lake Station is 40 acres and has a maximum depth of eight feet. This is now a city park with a beach and boat ramp. Rosser Park Lake is a 40-acre lake with a maximum depth of 26 feet. The lake is located at the junction of I-80/94 and I-65.

Several inter-ridge lakes still exist in the Coastal region. Watershed drainage alterations and natural succession has altered the structure of these lakes and reduced their extent considerably. Near the Porter and LaPorte county line are Long Lake, Mud Lake, Blag Slough, and Little Lake. Long Lake was the

[14] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 45 (1994).
[15] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 72 (1994).
[16] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 72 (1994).

largest of the interdunal lakes. Early surveyors described Long Lake as more than three miles long, almost five miles if one includes the marshes extending from its eastern end.[17] Mud Lake is the second largest of the interdunal lakes. Just a few miles east of Long Lake, it was drained and filled for industrial construction. Early surveys indicate that Mud Lake may have once covered 160 acres. Blag Slough and Little Lake were drained for development of the Town of Dune Acres. They have returned to open water as a result of ground-water level changes associated with development of a nearby dike and fly ash ponds.[18]

Additional lakes can be found throughout the coastal region. Many are scattered along floodplains and some have begun to undergo eutrophication. This is a process in which open water is gradually filled by sedimentation and plant growth. Some of these lakes are now classified as wetland marshes or palustrine wetlands.

**Wetlands**

"Wetlands are a major hydrologic feature of the Lake Michigan Region. In general terms, wetlands occur where the ground water table is usually at or near the ground surface, or where the land is at least periodically covered by shallow water."[19] Based on a 1981 inventory by the U.S. Fish and Wildlife Service, the region contains about 7,242 wetlands covering a total of approximately 65 to 68 square miles or rough 11% of the total land area.[20] There are three categories of wetlands in Indiana that are described by the U.S. Fish and Wildlife Service: Lacustrine, Riverine, and Palustrine. Lacustrine wetlands are permanently flooded lakes; Riverine wetlands are contained within a channel that carries flowing water; and Palustrine wetlands are found in areas that support shallow water for a portion of the growing season.

Based on inventory data palustrine wetlands constitute about 98% of the region's wetlands and about 92% of the total wetland area. Examples of palustrine wetlands include marshes, swamps, bogs, sloughs, and fens. Palustrine wetlands characterized by forest vegetation and those characterized by emergent vegetation, such as cattails, together constitute 59% of the wetlands and 76% of the wetland area.

About 50% of the region's wetlands are either seasonally flooded or temporarily flooded. These wetlands serve important roles in the watershed, but can be difficult to identify when they are not flooded. The region also supports several small wetlands. "About 40% of the region's individual wetlands are one acre or smaller; 48% are between one acre and 10 acres; 10% are between 10 acres and 40 acres; and 2 percent are greater than 40 acres."[21]

As settlement began in the Lake Michigan area, wetlands were generally considered wastelands, undesirable for farming and development. The marshland areas were primarily used for food from the plants and small animals found there. In 1850, Congress gave the "swamp lands" of the country to the individual states in which they were located. The swamplands were to be sold and the money used to drain and "reclaim" the lands. Swampland in the Calumet region sold for an average of $1.25 per acre.[22]

Between the Calumet Beach Ridge (a narrow area just south of the west arm of the Little Calumet River) and the Lake Michigan dunes, a vast wetland referred to as the Great Marsh existed. Wetlands dotted other areas of the dunes and further inland; however, none were as continuous as the wetland north of the Calumet Beach Ridge. From Michigan City west through the Indiana Dunes National Lakeshore was the

[17] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 74 (1994).
[18] Id.
[19] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 64 (1994).
[20] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 64 (1994).
[21] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 68 (1994).
[22] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 60 (1994).

Great Marsh, which averaged half a mile in width. The Great Marsh was centered on Dunes Creek, which flowed to Lake Michigan between the dunes. To the west of the Great Marsh, the wetland narrowed to approximately one-quarter mile. Further west, the wetland broadened again to encompass the lower meanders of the Little Calumet River. The enormous wetland complex evolved as back waters of Dunes Creek and the Calumet Rivers, and as lagoons that were left standing after Lake Michigan finally retreated to its present lake level. [23]

Portions of the Great Marsh still exist at its eastern- most points. A remaining example of the pockets of wetlands among the dunes may be found behind the foredunes on present-day West Beach near Ogden Dunes. There were also parallel beach ridges with intervening swales, which contained classic interdunal wetlands such as the ones found in Miller Woods at Gary.[24]

**Rivers and Streams**

The surface waters of the Lake Michigan coastal area include: Lake Michigan; the Little Calumet River, Grand Calumet River, Turkey Creek, Deep River, Salt Creek, Coffee Creek, Dunes Creek, Trail Creek, and the Galena River; several smaller tributaries and man-made ditches; many natural and man-made lakes; ponds and man-made excavations; and scattered remnants of marshes, swamps, and other wetlands. [25] The present hydrology of the Lake Michigan coastal area in Indiana is significantly changed from what existed before development. The industrialization and urbanization that began in northwest Indiana during the late nineteenth century extensively altered the natural landscape and natural drainage patterns.

The Grand Calumet River and the Little Calumet River have undergone extensive changes by both man and nature. At one time, these two rivers were a single waterway that followed a hairpin course. The source was in LaPorte County near its western boundary. The river flowed west through Porter and Lake Counties into Illinois. In Illinois the river flowed toward the northwest and then sharply curved to the northeast and re-entered Lake County. The river finally emptied into Lake Michigan at what is now Marquette Park in Gary.

A second waterway formed in early 1800 when Native Americans opened a new channel to Lake Michigan in Illinois. Canoes were pushed and pulled through the marshes between Wolf Lake and Lake Calumet until a permanent channel was opened to Lake Michigan about twelve miles south of the Chicago River. The southern river, flowing west across the Calumet region and discharging into the Lake from Illinois became the Little Calumet River. The northern river, flowing east and discharging into Lake Michigan in Indiana became the Grand Calumet River.

The mouth of the river in Illinois was cleared in 1870 for the development of Calumet Harbor. By 1872 the mouth of the river in Indiana was so clogged with aquatic vegetation and sand that it no longer could empty into the Lake. A map made by the US Topographic Bureau in 1845 showed that the Grand Calumet River no longer flowed into Lake Michigan in Indiana. Instead, the current had been reversed and its waters flowed with the Little Calumet in Illinois. [26] The present outlet for the Grand Calumet River in Indiana was created in the 1900s when the Indiana Harbor and Ship Canal was constructed.[27]

The Lake Michigan watershed was further modified when Hart Ditch was constructed from the town of Dyer to a site near Munster in 1850 to improve local drainage. The watershed of Hart Ditch was enlarged

[23]Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 59 (1994).
[24] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 60 (1994).
[25] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 59 (1994).
[26] Moore, P. The Calumet Region: Indiana's Last Frontier, p. 11 (1959).
[27] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 61 (1994).

when Cady Marsh and Spring Street Ditches were created to drain areas where Highland, Griffith and Schererville are now located. In 1908, Randall Burns of Chicago launched an effort to 'reclaim' the land. The high sands of the Tolleston Beach and the dunes separating Cady marsh and Lake Michigan were cut. The flow of the Little Calumet River and the Deep River, which joins the Little Calumet, were diverted into the lake just east of Ogden Dunes. The Little Calumet River was also dredged to the mouth of Salt Creek. These projects reclaimed more than 20,000 acres in Porter County and in Gary.[28]

In 1922, the construction of the Calumet Sag Channel drastically altered the hydrology of the Lake Michigan area. The new channel connected the Little Calumet River at its hairpin turn in Illinois to the Chicago Sanitary and Ship Canal. Runoff from part of the Little Calumet River watershed was permanently diverted from the Lake Michigan Basin to the Mississippi Basin.[29]

In 1926, Burns Ditch (now Portage Burns Waterway) was completed, changing the nature and course of the Little Calumet River. Because of periodic floods of the Little Calumet, the surrounding area was a marshland. The river would flow over the roads of Gary. In winter, ice jams also formed at the Broadway Bridge. Dredging is still conducted along the Calumet River system to maintain navigation channels at authorized depths to accommodate deep-draft vessels. Contaminants in dredged spoil from portions of the river, however, pose serious environmental concern. The flood plain of the Little Calumet River and its tributaries is one of the most flood-prone areas in the state. In 1980, the Little Calumet River Basin Development Commission was created by state statute to provide non-federal sponsorship and funding for flood control, recreation, and recreational navigation improvements along the Little Calumet River in Lake and Porter Counties.[30]

## Natural History

### Lake Michigan

Today's Lake Michigan has similar characteristics of other deep, cold lakes, but is relatively young due to its glacial origins. The lake's food chain is also relatively young, simple, and easily disrupted. For example, "benthic drift organisms, which are microscopic life forms fed upon by smaller fish, are an important part of the food chain and are of relatively few types". [31] The food chain consists of two separate but overlapping parts: the pelagic food web associated with offshore, open water and the benthic food web associated with the bottom. Both parts of the food chain are based on planktonic algae produced in surface waters. [32]

The glacial origins of Lake Michigan also greatly influenced the types of organisms that colonized the lake. "Lake Michigan's native fish community was largely a result of recolonization of species and evolution of endemics following retreat of the Laurentian Glacier, which began approximately 11,000 years ago. By the time of European settlement in the mid-1800s, 79 fish species inhabited Lake Michigan proper and an additional 40 were recorded from tributaries". [33] The two main predators were the lake trout and the lake whitefish. Many species spawned in both the lake and in the tributaries.

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[28] Moore, p. 13 (1959).
[29] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 61 (1994).
[30] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, p. 62 (1994).
[31] Hedge, Martin Michelle, 1998. The Southern Tip of the Big-Sea Waters: The Lake Michigan Natural Region, Chapter 27 in The Natural Heritage of Indiana. Marion T. Jackson, Editor. Indiana University Press.
[32] Eshenroder, R.L., et al., 1995. Fish-Community Objectives for Lake Michigan. Great Lakes Fishery Commission Special Publication 95-3.
[33] Id.

The most abundant and well-known species were those commercially fished. Native people and European settlers found the whitefish, lake trout, lake sturgeon, nine-spine stickleback, longnose dace, longnose sucker, lake herring, and Lake Michigan muskellunge, among others. "Commercial fishing began about 1820 and expanded about 20% per year". [34] By 1879 it was reported that whitefish were depleted in some nearshore locations. In addition, other species had become commercially important: sturgeon, lake trout, lake herring, and deepwater ciscoes. As some stocks became depleted, commercial interests targeted lake herring and deepwater ciscoes. Eventually yellow perch was added to the list of commercially important fish, especially for the southern end of the lake.

The yellow perch population on Lake Michigan is currently in severe decline. In response to declining yellow perch population, harvest regulations on sport and commercial fishermen were tightened. In 1997, commercial harvest of yellow perch was indefinitely suspended. Sport anglers had the daily bag limit reduced to 15 perch per day in 1997. [35]

**Terrestrial Habitats**

*(The following is an excerpt from Post, Tom 1998. The Natural Heritage of Indiana. Marion T. Jackson, Editor. Indiana University Press.)*

Inland is the Northwestern Morainal area, covering portions of Lake, Porter, and LaPorte counties plus a fraction of St. Joseph County. What this region lacks in size, it more than makes up for in biological diversity, particularly in the number of rare plant species. This great diversity is due to many factors, including the varied topographic relief. More than 300 feet (984 m) of elevational difference occurs from the top of the Valparaiso Moraine to the shore of Lake Michigan. This difference creates many microclimates and niches, which in turn harbor a variety of plant species.

A second factor contributing to this great diversity is the biological meeting ground at the southern end of Lake Michigan. Here elements of three biomes meet: the prairie, the eastern deciduous forest, and the northern boreal forest. It is not unusual to find a prairie plant such as little bluestem grass growing with a northern jack pine, while nearby are eastern forest trees such as American basswood. The moderating effect of Lake Michigan also plays a role by keeping conditions cooler near the lake, allowing more-northern plants to live far south of their normal range.

The Northwestern Morainal Region is composed of three sections: Valparaiso Moraine, Chicago Lake Plain, and Lake Michigan Border. All share certain plants and animals in common, but each has its own unique character.

In walking the length of the Valparaiso Moraine, all major community types of northern Indiana are encountered. The high, rolling hills of the eastern end of the moraine originally were cloaked in mesic forests of American beech, sugar maple, tuliptree, and red oak, with an abundance of characteristic spring wildflowers. Interspersed among the hills were a variety of wetlands ranging from shrub swamps of buttonbush to kettle lakes with floating mats of yellow spatterdock, white water lilies, and water shield. Two of the more interesting wetland types in this section are fens and bogs, and excellent examples of both remain today.

Farther west in Porter and Lake counties, the forest thinned into oak openings dominated by bur and white oaks. The true tallgrass prairie, characterized by big bluestem grass, Indian grass, compass plant, prairie dock, leadplant, and purple prairie clover, was found in western Lake County and extending into Illinois.

[34] Id.
[35] Indiana Department of Natural Resources, Lake Michigan Strategic Plan, Division of Fish and Wildlife, p. 7 (1997).

Located below and northward of the Valparaiso Moraine is the bed of glacial Lake Chicago. Sands and mucks underlie this flat, poorly drained area. As a result wetlands were numerous, especially along the Little Calumet and Grand Calumet Rivers. Much of this area has become highly industrialized and urbanized, but small, high-quality remnants still remain to give us an idea of the natural history of the region.

Perhaps the most interesting feature of this section is the swell and swale topography. This mosaic of alternating east-to-west wetlands and uplands originally consisted of more than 100 ridges extending south from Lake Michigan. Wetlands varied from shrub swamps to cattail and bulrush marshes, with floating aquatics such as pond-weed, pickerelweed, water lilies, and milfoils present. Sand prairie and savanna occurred on the tops and sides of the dry, sandy ridges. Prairie was composed of little bluestem, sand reed grass, blazing star, spiderwort, among other species. The savannas had many of the same prairie species but also included more typical species such as black oak, bracken fern, wild sarsaparilla, lupine, and goat's-rue. An outstanding example of this landscape is preserved in Clark and Pine Nature Preserve [in Gary].

In the extreme eastern portion of this section, a forest with distinct northern affinities developed on poorly drained soils. It is known today as a boreal flatwoods natural community. Standing water and tip-up mounds made by tree windfalls were common. Overstory trees included northern pin oak, black gum, red maple, tuliptree, and white pine. The ground flora was an interesting assemblage of several ground pine species, wintergreen, partridge berry, and gold thread scattered among fronds of royal and cinnamon fern.

The Lake Michigan Border Section is perhaps the most easily recognized section within this natural region. It occupies a narrow strip of land, at best a few miles wide, immediately adjacent to Lake Michigan from the eastern edge of Lake County to the Michigan State line. The most prominent physical features in this section are tall sand dunes towering in some areas more than 175 feet above the lake.

Starting at the water's edge and proceeding inland, one passes through several interesting communities beginning with the beach itself. The beach, baked by summer sun, windswept all year long, and pounded by winter storms, presents harsh conditions for plant life. Annuals such as sea rocket, bug-seed, and seaside spurge make their homes there. Just inland are the foredunes, which have become stabilized by deep-rooted grasses such as little bluestem, beach grass, and sand-reed grass. Shrubs such as red-osier dogwood, aromatic sumac, sand cherry, and prostrate juniper add color and diversity to the foredunes. The federally threatened Pitcher's thistle occasionally occurs on the foredunes. This species is found only along the shores of Lake Michigan and Lake Huron.

Scattered among the foredunes are shallow depressions created by winds scouring the dunes. These areas usually retain water all year long and are called pannes. Characteristic plants include Kalm's lobelia, fringed gentian, rose gentian, stiff aster, and bladderworts. Many of these plants also occur in fens in the uplands of the moraines.

After an exhausting climb into the high dunes, two different types of plant communities are encountered. Savannas dominated by white and black oaks with an understory of Pennsylvania sedge, bracken fern, lupine, and other sun-loving wildflowers are found on dry, sunny, south-facing slopes. Cool, north-facing slopes have species that are more mesic, such as red oak, basswood, flowering dogwood, and hepatica. Scattered through the dunes are stands of white pine and jack pine, remainders of the cooler climate typically found farther north.

Botanists have long come to the northwest part of Indiana to see this wide diversity of plant species growing in proximity to each other. No other region of the state has such a rich and varied flora.

## Socioeconomic Characteristics

### Historical Perspective on the Lake Michigan Region

Settlement of the region was greatly influenced by the region's natural resources. The abundant fish community of Lake Michigan supported a productive commercial fishery that in turn supported many associated industries. Commercial over-fishing was just one of the major factors that negatively affected fish communities of Lake Michigan and its tributaries. The unintentional introduction of sea lamprey was another important event that altered the fish community. Sea lampreys were first identified in Lake Michigan in 1936. They gained access to the upper lakes through the development of shipping channels that connected the Great Lakes to the ocean. Lamprey populations grew rapidly as they adapted to parasitizing lake trout and burbot. The sea lamprey contributed to the collapse of top predator populations (lake trout and burbot) by the late 1940s. [36]

After World War II, nylon gill nets proved to be a valuable tool to commercial fishermen targeting lake trout and other species. In the middle 1940s millions of pounds of lake trout were commercially caught in each state; however, by the middle 1950s the commercial catch was less than 1,000 pounds, lakewide. A combination of over-harvest and predation by sea lampreys eventually extirpated lake trout from Lake Michigan.[37]

The proliferation of alewife was the third major factor that drastically affected the ecology of Lake Michigan. Alewife invaded (again through man-made channels) in 1949. Elimination of top predators due to invasion by the sea lamprey allowed the alewife to proliferate and further disrupt the native food webs. By the middle 1960s approximately 80% of the biomass in Lake Michigan consisted of alewife.[38]

The alewife is a planktivorous (plankton eating) fish and its great abundance depressed the plankton population needed to foster native planktivores. Additionally, direct predation by alewives on larval fish of several species is believed to have contributed to the extinction of three species of deepwater ciscoes and suppression of emerald shiner, lake herring, yellow perch, and deepwater sculpin. [39]

In addition to direct influences on the fish populations, indirect impacts have been documented due to poor land-use practices, dam construction and water pollution. These have impacted fish populations by restricting access to spawning grounds, physical alterations of spawning grounds, and degraded water quality.

The process of rehabilitating the fish community in Lake Michigan began in the middle 1960s. First, a lampricide was used to control the number of sea lampreys; the suppression of sea lampreys was a necessary prelude to the reestablishment of piscivores (fish-eaters) and this suppression remains essential today. Lake trout restocking was started in 1965. Coho salmon and chinook salmon were introduced in 1966 and 1967 respectively, by the State of Michigan. Commercial harvest of salmonids was eventually restricted or eliminated.[40]

The salmon species fared well and an almost instantaneous sport fishery developed when the mature fish homed-in on their natal streams. The clamor was on for the other Lake Michigan states to introduce salmon as well.

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[36] Indiana Department of Natural Resources, Lake Michigan Strategic Plan, Division of Fish and Wildlife, p.1 (1997).
[37] Id.
[38] Indiana Department of Natural Resources, Lake Michigan Strategic Plan, Division of Fish and Wildlife (1997).
[39] Id.
[40] Id.

Indiana started releasing salmon in 1969. In 1975 Mixsawbah State Fish Hatchery opened and the Bodine Hatchery came on line in 1983. These two hatcheries are capable of producing in excess of 1,000,000 fish (65,000 pounds) annually, solely for stocking Indiana's part of Lake Michigan and its tributaries. Coho and chinook salmon are reared along with 2 strains of steelhead trout. Today, resource agencies annually stock approximately 15 million trout and salmon into Lake Michigan.

As the massive stocks of salmon and trout started to reduce the abundant population of alewives in Lake Michigan through predation, populations of many native species that had been suppressed by alewife started to rebound. Most notable for sportsmen and commercial fishermen was yellow perch. In general, the yellow perch population grew consistently until 1992. The commercial harvest was reported to be 1.6 million pounds (3.5 million-kg) in that year.[41]

Smallmouth bass and several other gamefish are native to Lake Michigan. Relatively shallow water and a shifting sand bottom with little structure dominate the southern shore of Lake Michigan. With the construction of new breakwaters made of various sizes of rock, habitat increased and therefore the abundance of smallmouth bass and other native fishes have also increased.

Unfortunately, exotic species continue to invade and disrupt Lake Michigan's fish community. Several of today's invaders entered the lake community through ballast water discharge. The spiny water flea (*Bythotrephes cederstroemi*), a large zooplankton that preys on small-bodied zooplankton, became prominent in 1986. The spiny water flea may compete with larval natives for resources and disrupt the food web. Other invaders from ballast water that may perturb the fish community are the zebra mussel (*Dreissena polymorpha*), the ruffe (*Gymnocephalus cernuus*) and the round goby (*Neogobius melanostomus*).

It is clear that previous unintentional introductions of exotic species have had profound impacts on the Lake Michigan fish community. However, the effects of recent invaders are still yet to be determined. The potential for introduction of exotic species continues to be a major threat to the Lake Michigan ecosystem.

## On the Shores of Lake Michigan

Indiana has a rich heritage of significant historical and cultural resources that place Hoosiers in our national history. The prehistory of Indiana ranges from ca. 10,000 B.C. to approximately 1,650 A.D. when early historical accounts of the area begin to appear. Indiana's location among different Great Lakes-Riverine cultural areas and its geographic and environmental setting bordering the Southeast and Upper Great Lakes area created a number of unique cultural and historical resources. Historic Native Americans were first recorded in Indiana in the 17th century. The Potawatomis occupied areas along the Indiana-Michigan border. The first Europeans may have entered Indiana as early as 1660. They included missionaries, explorers, and fur traders. Father Jacques Marquette, a priest from a mission in Mackinaw, Michigan was probably the first European to enter Indiana during his travels around the southern tip of Lake Michigan in 1674.[42]

During the settlement period beginning in the early 1700's, many immigrants arrived from the southern states, France, Germany, Britain, Ireland, and the Mid-Atlantic States. They settled tight-knit pockets in

[41] Id.
[42] Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, 1998. Indiana's Cultural Resources Management Plan 1998-2003.

rural communities in northern Indiana and contributed to the labor force by building canals, railroads, factories, and trades. African-Americans were also among early settlers. Some African-Americans entered as slaves, however, the terms of the Northwest Ordinance forbade slavery. These immigrants and former slaves became Indiana's first African-American residents. In part due to a segregationist atmosphere in Indiana in the latter part of the 19th century, major city centers like Gary became the focus of large African-American populations. A rich ethnic heritage grew in northwestern Indiana including churches, schools, farmsteads, jazz clubs, neighborhoods, and businesses.[43]

An early dependence on water characterized the developing cities of the Great Lakes. The major settlement period of the Great Lakes region coincided with the rapid development of industrial technologies and processes. Proximity to productive agricultural land and access to important raw materials, coupled with a growing labor force, gave the region an unparalleled advantage in domestic and overseas markets. Direct application of waterpower had a more limited role in the Great Lakes cities compared with places inland; rather, water transportation was the foundation of shore-based manufacturing and related activities.

"Water-intensive industrial operations, whether located on the waterfront or nearby, were a natural result of water availability."[44] In the Upper Great Lakes, massive movements of iron ore from northern Minnesota and Michigan to Indiana and neighboring states helped make the Great Lakes transportation system the busiest in the world for many years. The shipping 'backbone' of Great Lakes commercial navigation was made possible with the construction of a ship canal and lock system, opened in 1855 at Sault St. Marie, Michigan. One unfortunate consequence of "the pall-mell industrial era" was environmental degradation. "The binational region's bountiful resources which helped sustain economic growth also were depleted, in some cases recklessly." [45]

The pattern generally applicable to the Upper Great Lakes also applied to Northwest Indiana. Agriculture and fishing were important early commercial ventures, uses still important in the region, but access to raw materials and ready transportation led to rapid industrialization.

Between 1852 and 1865, the first railroads were built to reach Chicago allowing the Midwest to be accessible to the greater population. Soon stations and shipping points were established along the routes, eventually forming the nucleus of the towns to be established. Among these points were Porter, Calumet (Chesterton), Lake Station, and Dyer. The railroads allowed goods to be transported from the east rapidly and allowed raw materials to be brought in for new development.

Interest in a harbor on Trail Creek in Michigan City dated from the early 19th Century, owing in part to the construction of the Michigan Road north from Indianapolis. In 1836, Congress appropriated $20,000 for harbor improvements, and additional appropriations followed in the next two years. Early efforts were generally unsuccessful, however, and the port declined; the "whole story is one of inefficiency, government red tape, and bad politics."[46] Following the Civil War, there was renewed interest in the harbor, and roughly $1 million was expended through 1897 to improve and manage its facilities. In the 1890s, there were sailing vessels and steam freighters using the area. Small schooners were "so thick that they had to be parked double until they could get to the dock and unload." [47]

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[43] Indiana Department of Natural Resources, Division of Historic Preservation and Archaeology, 1998. Indiana's Cultural Resources Management Plan 1998-2003.
[44] Allardice and Thorp, A Changing Great Lakes Economy: Economic and Environmental Linkages, State of the Lakes Ecosystem Conference (August1995).
[45] Allardice and Thorp, A Changing Great Lakes Economy: Economic and Environmental Linkages, State of the Lakes Ecosystem Conference (August1995).
[46] Munger, Michigan City's First Hundred Years, 31-32 (1969).
[47] Id., at 49-50, quoting a former resident, O. K. Deming.

Also in Michigan City, the Haskell and Barker Car Company developed a business manufacturing train cars for the Union Army during the Civil War. In 1869, the company produced 600 cars a year; production increased to 1,000 cars annually by 1879 and 6,000 annually by 1894. In that year, the company employed 3,500 men. "They were using 150,000 tons of iron, 75,000 tons of coal, and 100,000,000 feet of lumber annually." [48]

Until the twentieth century Indiana's shores of Lake Michigan were relatively wild. Chicago was growing rapidly and industries needed land on which to expand. United States Steel chose what would become Gary for a new "ground up" plant, attracted to the southern extremity of Lake Michigan where "the greatest tide of transportation in the world" could be found. The first boat from Minnesota bearing steel entered its Indiana Harbor in 1908, and production began the following year. [49] Other growth occurred in the area, including the Hubbard Steel Foundry Company (1910), the Sinclair Refining Company (1915), Youngstown Sheet and Tube Company (1923), and the Roxana Petroleum Corporation--later Shell Oil (1928). The Indiana Harbor enjoyed an active trade, with principle receipts in the early 20th century including iron ore, coal, limestone, gypsum, wood pulp, and palm oil.[50]

When the United States Steel Corporation built its industrial complex in Gary, it moved the Grand Calumet River channel about 1.5 miles south. During mill operations, millions of gallons of water were pumped each day from Lake Michigan and eventually discharged into the river. In addition, water from the new roofs and paved streets of Gary eventually returned to the Grand Calumet River.

Standard Oil moved its operations to Whiting to be closer to the Midwest market. There were more railroads converging in Chicago than anywhere else in the world and the lake provided cheap water for transportation and industrial uses. Sand ridges were leveled and wetlands were filled. Water lines were constructed into Lake Michigan to bring water into the plant and eventually the city. Sewers were also built to drain Berry Lake and the low areas near the refinery.[51]

Inland Steel found its origins in open-hearth furnaces and mills begun in present-day East Chicago in 1901. The company was the largest industry to move to East Chicago. The plant rapidly expanded as the Indiana Harbor and Ship Canal was nearing completion. In 1907, the Indiana General Assembly enacted legislation allowing industries to fill Lake Michigan to the limits of the state's jurisdiction. The filling process allowed Inland to dispose of steel waste, slag, and continue to expand operations lakeward.[52]

Midwest Steel and Bethlehem Steel companies also looked to Indiana for a new harbor. In the late 1950's and early 1960's the companies bought land in the dunes. The harbor constructed near Burn's Ditch (Portage Burns Waterway) provided a successful port on the Great Lakes for these companies.[53] Residential communities were built along the shoreline including Dune Acres and Beverly Shores.

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[48] Nicewarner, Michigan City, Indiana: The Life of a Town, 127-129 (1980).
[49] W.P.A., The Calumet Region Historical Guide, 151-161,(1939).
[50] Id. at 218-230.
[51] Moore, 193 (1959).
[52] Moore, 235 (1959). Moore explains that the Indiana General Assembly passed the "made-land" law, which permitted industries to fill in Lake Michigan out to the limits of the state's jurisdiction. "Federal control over the Lake began at the depth of twenty-two feet, at which point the water was considered navigable. As the Lake was filled in, industries could obtain a deed from the state for the land thus made for $25.00 an acre. The companies were required to pay $100.00 a year taxes for each acre acquired."
[53] J.Sullivan, A Descriptive History of Land Use, The Indiana Dunes Story: How Nature and People Made a Park, 20 (1984).

### Historic Commodities

Sand was realized as a valuable commodity and provided a source of income for many years. Railroads needed sand for track elevation and municipalities needed sand for filling wetlands. The site of the Chicago World's Fair, the Columbian Exposition of 1893, was filled with sand from the areas just east of Miller. Railroads were built along the side of dunes so those steam shovels on the cars could shovel sand directly into the cars. Sand was also sucked from the shallow waters of Lake Michigan by barges. In 1898, more than 300 cars of sand were shipped from the Dune Park station every day.[54]

Natural resources other than sand were also found to be a source of income. The dunes were filled with white pine and cedar, allowing sawmills to prosper due to the plentiful timber. Roads, buildings, and boats were built with the lumber taken from the shore areas. Rich deposits of lake clay and boulder clay stimulated a brick and tile business bringing the establishment of the City of Hobart and the Town of Porter. Abundant wildlife also fueled trade. Fish and furbearing animals continued to be a source of income for new settlers as they were for the Native Americans and early traders.

Conflicts began to arise over land use of the lakeshore region and the accompanying dunes. Industry was interested in port development on Lake Michigan and many residents were interested in preserving the natural beauty of the area. The first official act to preserve the dunes and wetlands along the south shore of Lake Michigan was the creation of Indiana Dunes State Park in 1925 between Dunes Acres and Beverly Shores. In 1966, Congress devised a compromise between the two conflicting uses by creating both the Port of Indiana, also known as Burns International Harbor, and the Indiana Dunes National Lakeshore.

## Current Land Uses

### Population Characteristics

Six cities (Hammond, East Chicago, Whiting, Gary, Portage, and Michigan City) and six towns (Ogden Dunes, Burns Harbor, Dune Acres, Porter, Beverly Shores, and Long Beach.) are located along the Lake Michigan shoreline. The unincorporated residential community of Duneland Beach and a small part of the unincorporated area of Michiana Shores also occur along Indiana's shoreline. The watershed includes portions of the following political townships: North, St. John, Hanover, Calumet, Ross, Center, Hobart, Ross, and Winfield in Lake County; Portage, Union, Porter, Westchester, Liberty, Center, Morgan, Pine, Jackson, and Washington in Porter County; and Michigan, Coolspring, New Durham, Springfield, Center, Galena and Hudson in LaPorte County.

The 2000 Census results provide important population data for the coastal region of Lake, Porter, and LaPorte counties.[55] This region represents 12.2% of Indiana's population and has grown by 4.2% from 1990 to 2000[56]. Overall, Indiana is estimated to have grown 9.7% from 1990 to 2000[57]. Census 2000 data show a population in Lake County of 484,564; Porter County population was 146,898, and LaPorte County had a population of 110,106. The City of Gary was the largest city with a population of 102,746[58].

[54] Moore, 101 (1959)
[55] Stats Indiana website: http://www.stats.indiana.edu
[56] Id.
[57] Id.
[58] Id.

Growth forecasts from 1997 to 2020 for Northwestern Indiana indicate an overall increase for Lake County of 5%, for Porter County of 17.6%, and for LaPorte County of 3.8%[59]. Many areas of northwestern Indiana have exceeded the state growth rate; however Gary, Hammond, and East Chicago populations had an overall decline from 1990 to 2000. Gary lost 11.9%, Hammond lost 1.4%, and East Chicago lost 4.4% of their population[60]. In contrast, cities with the largest growth were Porter in Porter County, which grew at a rate of 59.5%, Dyer in Lake County, which grew by 27.2%, and Schereville, also in Lake County, which grew by 24.7%[61].

## Land Uses

The development of maps utilizing current land uses is difficult in the rapidly changing coastal region. However, land use maps can provide important information on how the coastal region is developed. The U.S. Geological Survey produces maps of land uses and land cover in the United States. Land use refers to man's activities that are directly related to the land. Land cover describes the vegetation, water, natural surface, and artificial constructions at the land surface.

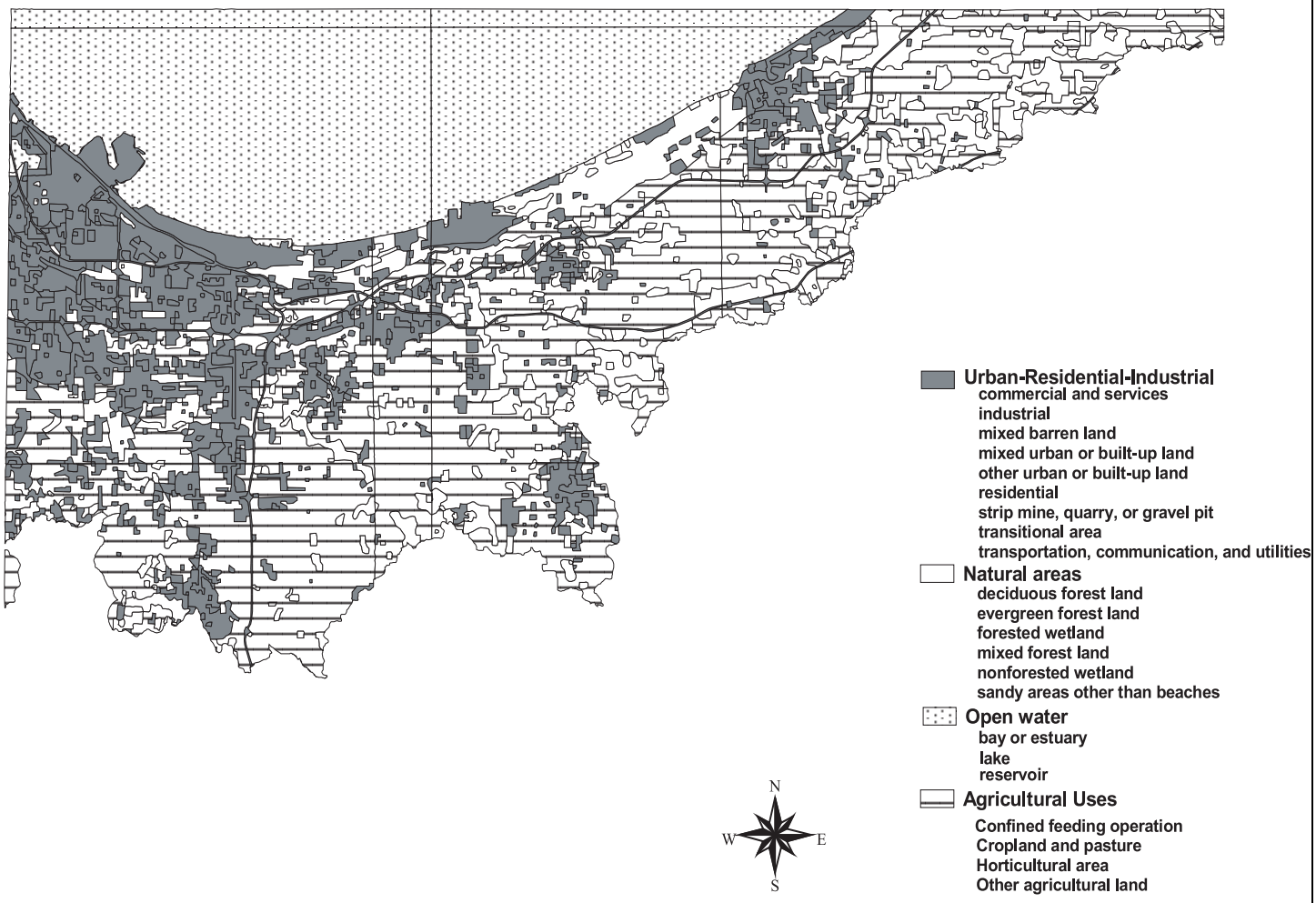
Figure 2.1 shows the land use for the coastal region using the U.S. Geological Survey's 1990 digital data. Land uses were grouped into four categories for illustrative purposes: Agricultural Uses, Open water, Urban-Residential-Industrial, and Natural Areas. Based on the 1990 data, the percent area covered by these categories within the coastal region was calculated as follows:

| **Land Use Category:** | **Percent Area:** |
|---|---|
| Agricultural Uses | 34.68% |
| Open Water* | 29.02% |
| Urban-Residential-Industrial | 22.62% |
| Natural Areas | 13.68% |

*Includes Indiana's portion of Lake Michigan

[59] Stats Indiana website: http://www.stats.indiana.edu
[60] Id.
[61] Id.

## Figure 2.1: Current Land Uses in the Lake Michigan Coastal Watershed




*based on 1990 USGS data

**Coastal Economy**

Today, Indiana and the seven other Great Lakes states, together with Ontario, comprise a major industrial and agricultural region of North America. The substantial economic activity in the Great Lakes region has had much to do with making U.S. and Canadian trade the largest bilateral relationship in the world. [62]

The transportation network in the Lake Michigan region is vital to its economic sectors. Harbors in the Lake Michigan region link Indiana to other ports in the Great Lakes. Cargo shipped through the region's ports include coal, coke, iron ore, steel and steel related products, fertilizer, grain, salt, limestone, and

[62] Allardice and Thorp, A Changing Great Lakes Economy: Economic and Environmental Linkages, State of the Lakes Ecosystem Conference (August 1995).

petroleum. Port of Indiana handled more than 8.6 million tons of cargo in 1989, which accounted for more than $46 million in sales and purchases. Counties in northern, central and even southern Indiana benefit directly and indirectly from Port of Indiana. [63]

The major industries and communities within the Lake Michigan region are linked together by the Chicago South Shore and South Bend Railroad, Interstates 80/90 and 94, and US Highways 12, 20, and 30. Studies by the Northern Indiana Commuter Transportation District show that the South Shore trains helped Indiana residents bring in $120 million a year in wages and salaries (in 1987 dollars) from jobs in Chicago.

Today, large industry contributes a dominant share to the local economy, including the payment of property taxes. The ten largest industries paid approximately $175 million in property taxes in1996. These companies are Bethlehem Steel, Burns Harbor Division; LTV Steel; Cerestar (formerly American Maize); Inland/ISPAT Steel; National Steel, Midwest Division; Lever Brothers; USX; Praxair; NIPSCO; and BP-Amoco. The steel industry employs nearly 30,000 area residents, generating nearly $20 million daily into the Indiana economy. [64]

Steel making is the dominant industrial use of the Lake Michigan shoreline. The steel industry remains the major employer in Northwest Indiana, although there were up to 75% fewer jobs in individual facilities in the 1990's than in the 1970's. With productivity improved, more tonnage of steel is now produced with fewer workers. [65]

The five major steel plants are LTV Steel and Inland/ISPAT Steel at East Chicago, USX at Gary, National Steel in Portage, and Bethlehem Steel in Burns Harbor. In addition, Beta Steel minimill is located at the Port of Indiana. At least 25% of the steel production capacity in the United States is concentrated on the south shore of Lake Michigan in Indiana. [66]

The BP-Amoco Corporation operates the only oil refinery directly on Lake Michigan. Originally built as the largest refinery in the world by John D. Rockerfeller in the 1880's. Relatively little oil is transported by ship but the Calumet region has the greatest concentration of pipelines in the Midwest. Crude oil and natural gas are carried by pipeline from Texas and Oklahoma and distributed by pipeline or truck after refinement. Over 100 years of operation has left an accumulation of oil floating on groundwater beneath the BP-Amoco refinery. [67] In 2000, approximately 9 to 10 million gallons of product remained floating on groundwater. Through product recovery systems, BP-Amoco has confined all product to its property.

Despite efforts to control floating oil in the area of the Indiana Harbor Ship Canal, the U.S. Fish and Wildlife Service (FWS) has found that the remaining floating oil represents a potential hazard to fish and wildlife resources, particularly birds. Information on oil in the Indiana Harbor Ship Canal can be found in the FWS' May 21, 1996 Biological Opinion regarding the effects of the Indiana Harbor Ship Canal maintenance dredging on the peregrine falcon and in the September 16, 1996 Final Fish and Wildlife Coordination Act Report on the dredging project. Both documents are available from the FWS Ecological Services Field Office in Bloomington, Indiana.

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[63] Indiana Department of Natural Resources, Water Resources Availability in the Lake Michigan Region, Indiana, 13 (1994).
[64] McDermott (Editorial), Don't take industry for granted, Hammond Times (Aug. 11, 1996) and available at the following address on the Internet: http://www.calunet.com/archives/times/960811/McDermott.column.d.03.htm
[65] Botts, Lee, Current Uses of Indiana's Coastal Resources: Final Report for the Indiana Coastal Coordination Program (November 1995).
[66] Id.
[67] Personal communication, Dave Kalet, 10/20/00, Remediation Manager at the BP Whiting Refinery.

Coal-burning power plants are another major industrial use of Lake Michigan shoreline. NIPSCO's Michigan City generating station, the Bailly station at Burns Harbor, the Dean H. Mitchell plant in Gary, and the Southern Energy Plant in Hammond provide electricity to the utility's service area across approximately the northern third of Indiana. [68]

The Lehigh Portland Cement Company at Buffington Harbor in Gary was formerly a division of U.S. Steel. The calcium aluminate cement was sold world wide for making steel. The use of the harbor for delivery of raw materials prevents other uses, but in 1995, 90 acres was acquired by the City of Gary through the proposed sponsors of casino boat development. [69]

The Port of Indiana, because it was designed to handle traffic from the St. Lawrence Seaway, contains many smaller companies. About 20 companies lease port land for activities including production of hot rolled steel products and steel pickling; distribution of liquid and dry fertilizers, road salt and agricultural calcium, processing and distribution of coal, coke, limestone and construction aggregate materials, and making asphalt. While most raw materials arrive at the port by barge or ship, most distribution to users is by truck.

Significant contributions to the regional and state economy are also provided by agribusiness, as well as commercial and service sectors. More than 36 facilities throughout Northwest Indiana manufacture plastics and related materials. Additional major industries including chemical companies are located along the Grand Calumet River and the Indiana Ship Canal and Harbor. Non-manufacturing jobs are also an important component of the coastal economy. Non-manufacturing jobs increased by 29% between 1983 and 1996. "Wholesale trade is up 40%, and the service industry has seen considerable growth in the last 25 years." [70]

As of 2000, a total of 20 commercial fishing licenses are still held by 11 operators. Commercial fishing boats operate out of Michigan City, Burns Waterway and the Ship Canal. The State also licenses 43 charter boat operations for sport fishing. These boats use all the marinas on the shoreline with some moored in Burns Waterway. "[I]n 1988, Indiana fishermen brought in 1.3 million pounds of fish which generated close to $1.7 million dollars for the state's economy." [71]

The area also supports several institutes of higher learning. Valparaiso University is a private university located in the city of Valparaiso, Porter County. Calumet College of St. Joseph is also a private college located in the city of Whiting, Lake County. Both Purdue and Indiana Universities have regional campuses, Purdue Calumet and Indiana Northwest, which offer undergraduate and graduate degrees.

**Economic and Job Statistics**

The coastal region faces some complex economic issues. Employment by industry is changing as the region expands to include more industries including those related to natural resources. The unemployment rates from 1997 were 4.5 % in Lake County, 4.0% in LaPorte County, and 3.0% in Porter County. However, total full and part-time employment increased by 5.5% in Lake County, 8.71% in LaPorte County, and 19.78% in Porter County between 1990 and 1997.[72]

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[68] Botts, Lee, Current Uses of Indiana's Coastal Resources: Final Report for the Indiana Coastal Coordination Program (November 1995).
[69] Id.
[70] Northwest Indiana Magazine, July 1998. Steel NO.1: Steel is Still King, But Other Industries Thrive. Indiana Business Magazine.
[71] Coast Alliance, State of the Coasts: A State-by-State Analysis of the Vital Link Between Healthy Coasts and a Healthy Economy, p. 150 (June 1995).
[72] Indiana Buisiness Research Center website http://www.stats.indiana.edu/commuting_topic_page.html

Employment by industry between 1990 and 1999 increased in several sectors with Mining (58.76%), Agricultural services, forestry, fishing, and other (35.38%), and Services (32.99%) showing the greatest increase in Lake County. The greatest decline in employment in Lake County involved the Military (-31.96%), Manufacturing (-17.90%), and Transportation and Public Utilities (-11.67%).[73] In LaPorte County the greatest increase in employment was found in the Construction industry (39.70%), Services (31.30%), and Local government (16.99%). The greatest declines were in the Military (-29.65%), Federal civilian (-14.96%), and Manufacturing (-12.28%). In Porter County, the greatest increase in employment occurred in Construction (62.08%), Finance, insurance, and real estate (43.08%), and Wholesale trade (42.22%). The greatest declines were in Military (-22.32%), Transportation and public utilities (-16.11), and Farm employment (12.94%).[74]

Commuting patterns also provide some information about the labor market in the coastal region. Based on the 1999 State tax return information, Lake County workers 16 years of age and older predominately worked in their county of residence. However, 15.6% worked outside of Lake County with 13.38% working outside of Indiana and just 2.22% working in another Indiana county. LaPorte County has similar work patterns with 83.6% of resident workers employed in the county. Of the 16.4% working out of their county of residence, only 1.6% worked out of Indiana. A lower percentage of Porter County workers were employed in their county of residence, 67.9%. Of the 32.1% that worked out of their county of residence, 6.3% worked out of Indiana.

Land use patterns reflect the changing job markets. The number of acres in farms has changed in all three counties. In Lake County, the number of acres in farms has increased slightly from 144,305 acres in 1992 to 148,872 acres in 1997. LaPorte County has experienced a decreased of 7% from 267,695 acres to 247, 756 acres during the same time period. Porter County also experienced a decrease of 6% in farm acres from 142,482 acres to 134,505 acres. Porter County is the only county to show a slight increase in farm acres devoted to woodland harvest from 4,111 acres in 1992 to 4,495 acres in 1997.[75]

**Recreation and Tourism**

The Lakeshore has always attracted people interested in recreation. In 1997, Indiana Dunes State Park had approximately 850,000 visitors and 16,000 campers. [76] The Indiana Dunes National Lakeshore alone receives approximately 1.6 million visitors each year. This activity generates approximately $26 million annually. Public campgrounds are available at Indiana Dunes State Park and the National Lakeshore. Other important recreational uses of the shoreline include picnicking, nature study, bird watching, and walking. Public access for picnicking is provided at municipal, state, and federal parks.

Recreational fishing impacts the coastal economy. Based on Lake Michigan angler surveys from 1992 through 1995, approximately 110,000 trout and salmon fishing trips were taken and 93,000 fish were harvested annually with an annual economic impact of $2.8 million.[77] Data from the 1996 National Survey of Fishing, Hunting, and Wildlife Associated Recreation estimates that 761,000 residents and non-resident anglers, age 16 and over, took fishing trips on the Great Lakes. Total spending by anglers for Great Lakes fishing trips totaled $16,909,000 in 1996, an average of $280 per angler. [78]

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[73] Id.
[74] Id.
[75] U.S. Census of Agriculture, February 1999. Indiana Agricultural Statistics Service, http://www.nass.usda.gov/in/countydata.html
[76] Porter Co Convention, Rec, & Visitor Commission
[77] Indiana Department of Natural Resources, Lake Michigan Strategic Plan, Division of Fish and Wildlife, (1997).
[78] U.S. Fish and Wildlife Service, 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation: Indiana, (1996).

Access for fishing is available directly along the shore outside swimming areas at all but one of the national park beaches and from the Lake Street beach in Gary. Fishing is also possible at the Hammond Water Filtration Plant and NIPSCO's generating stations in Michigan City and Hammond as well as outside the bathing beach at the Wells Street beach in Miller. Sport fishermen can also use fishing piers and breakwalls in 10 public parks or marinas from Hammond to Michigan City. Southern Energy in Hammond, USX, and the Port of Indiana allow access from private piers or breakwalls.[79]

The DNR, Division of Fish and Wildlife has stocked trout and salmon along the shoreline of Lake Michigan since 1969. The area stocked extends from Michigan City to Whiting and includes sites along Trail Creek and the East Branch of the little Calumet River. The number of trout and salmon stocked from 1986 to 1997 ranged from 600,617 to 941,487 fish and averaged 827,292 fish per year.[80]

As the trout and salmon sport fishery developed, so did the charter boat industry. By the mid-seventies, charter boats were harvesting a large number of trout and salmon each year. In 1987, Indiana enacted legislation for regulation of the charter industry to require accurate reporting of catch records. The number of charter licenses issued to fish Lake Michigan during the 1998 charter season was 42, compared to 45 licensed operators in 1997. The number of licenses has steadily decreased from a high of 79 licensees in 1989. Since 1994, the number of charter licenses has ranged between 35 and 45. Harvest rates (number of fish harvested per 100 angler-hours) by charter anglers in 1998 compared to 1997 decreased for coho salmon, chinook salmon, and brown trout, while rates for steelhead and lake trout increased.[81]

Boating and beach uses are the most popular recreational uses of the Lake Michigan shoreline. About half of the 45-mile (72.5 km) shoreline is sand beach. Most beaches are either in public ownership or accessible by easement agreements from the shoreline. However, access from land is limited in several areas by lack of public transportation or parking for cars. The chief commercial activities immediately on the shoreline are concessions associated with beaches and marinas. [82]

Demand for public access is intense and growing. Access for recreational boating increased following formation of the Lake Michigan Marina Development Commission of Michigan City, Portage, Gary, East Chicago, Hammond, Whiting. Marinas supporting boat launches, boat storage, public fishing, public beaches and parks have been developed in Michigan City, Portage, East Chicago, and Hammond. In total, over 2,100 marina slips were available in 1998. The Hammond Marina is one of the nation's largest with 1,113 slips, five launch ramps and fishing piers. [83]

Associated with the marinas are Indiana's Lake Michigan casino boats. Millions of visitors visit the five casino boats annually and coastal residents work at the casinos. In total, the Empress (now called the Horseshoe Casino), the Blue Chip Casino, Majestic Star, the Showboat Mardi Gras Casino (now Harrah's), and the Trump Casino generated almost $190 million in tax revenue in 1997. [84]

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[79] Botts, Lee, Current Uses of Indiana's Coastal Resources: Final Report for the Indiana Coastal Coordination Program (November 1995).
[80] Indiana Department of Natural Resources. Charter Boat Catch and Effort, Indiana Waters of Lake Michigan, Division of Fish and Wildlife by Janel S. Palla. (1998).
[81] Indiana Department of Natural Resources. Charter Boat Catch and Effort, Indiana Waters of Lake Michigan, Division of Fish and Wildlife by Janel S. Palla. (1998).
[82] Id.
[83] Northwest Indiana Magazine, July 1998. Discover Northwest Indiana: What's Right With the Region. Indiana Business Magazine.
[84] Northwest Indiana Magazine, July 1998. STEEL NO.1: STEEL IS STILL KING, BUT OTHER INDUSTRIES THRIVE. Indiana Business Magazine.

# Chapter 3: The Coastal Program Area

The Coastal Program Area defines the lands and waters eligible for financial and technical assistance under the Lake Michigan Coastal Program (LMCP). There are three elements to Indiana's Coastal Program Area: the inland boundary, the lakeward boundary, and federal areas excluded from the program.

## Establishing the Inland Boundary

Federal regulation pursuant to the CZMA (15 C.F.R. § 923.31) requires that the inland boundary of a state's coastal program include those areas for which management is necessary to control uses that have direct and significant impacts on the following:

- Coastal waters
- Special management areas
- Marshes and wetlands that contain flora typical of the region
- Beaches
- Transitional areas, i.e. areas subject to storm surge; areas containing vegetation that survives because of conditions associated with proximity to coastal waters; dunes and rocky shore areas to the point of upland vegetation
- Islands

In addition, the inland boundary must be presented in a manner that is clear and exact enough to permit determination of whether a property or an activity is located within the boundary area. An inland boundary defined in terms of political jurisdiction (e.g. county, township or municipal lines) cultural features (e.g. highways, railroads), planning areas (e.g. regional agency jurisdictions, census enumeration districts), or a uniform setback line is an option so long as it includes the areas identified above.

In determining a final inland boundary, comments on the scoping document and P/DEIS were considered, past program development plans were reviewed, the comments from public meetings and the Northwest Indiana Public Workgroups were considered, and scientific inventories and studies were analyzed.

### Public Input into the Draft Boundary

The results of the past program development plans and public comments were summarized in a report by Dr. Mark Reshkin, "Boundary Recommendation for the Indiana Coastal Coordination Area September 1995". The following is taken from that report. Public meetings were held on March 29 and 30, 1994 at which an initial draft boundary was presented. The initial draft boundary started at Indianapolis Boulevard eastward from the junction with State Line Road southeast and then to the Indiana Toll Road. From the Toll Road east 4.5 miles to its intersection with U.S. Route 12, then eastward through Lake, Porter, and LaPorte Counties to the boundary with Berrien County, Michigan.

Public comment received at these meetings plus written comments largely recommended a wider boundary area. Several federal agencies urged inclusion of the three coastal counties believing administration would be easier citing the example of the Wisconsin program. Others recommended that the boundary coincide with the Lake Michigan drainage basin boundary. Based on this initial response, two new draft boundary options were presented to the public on August 2, 1995. These options expanded the boundary area as follows:

Option A was similar to the draft boundary proposed in March 1994, however it added some areas south of the Grand Calumet River in Gary and Hammond, the Little Calumet River West Branch corridor from its mouth at Burns Ditch to the proposed control structure in Hammond, and the flood plain of Trail Creek in LaPorte County south to Highway 20.

Option B was a larger area. It included the areas of Option A above and several river corridors, lakes, extensive wetlands and natural areas in all three counties. Among the areas included in Option B were parts of the following river corridors: the East Branch of the Little Calumet River, Salt Creek and Deep River. Additionally, an area including the Hoosier and Oak Ridge Prairies was included under this option as well as Wolf Lake and Lake George in the Hammond-Whiting areas.

Public comment on August 2, 1995 primarily reflected that there was a need for coordination with environmental management efforts underway by the IDEM in the Area of Concern and that boundary options presented do not include the entire Area of Concern. The AOC is all of Lake County north of the Borman Expressway.

It was determined that a third option, Option C, the Lake Michigan Drainage Basin in Indiana, would be developed for consideration by the public.

Additional public meetings were held in October 1995. Public opposition was expressed at these meetings and through local actions by county commissions in Porter and LaPorte counties. Therefore, the DNR determined that additional public input was needed before proceeding with boundary selection. In support of this, the NRC, the policy body for the DNR, resolved to support efforts to improve communication and coordination in the Lake Michigan region. The emphasis of the resolution was on the progress that could be made with better government coordination and without the enactment of new legislation.

In 1995, the DNR launched a public workgroup process to identify issues regarding the economic, natural and cultural resources of Indiana's Lake Michigan Coastal Region and to provide creative solutions for the resolution of these issues. A more detailed description of the workgroups can be found in Chapter 6: Program Development and Implementation. The workgroup process provided information that was used to generate a program boundary to address the priorities identified including government streamlining, economic redevelopment, recreational access, shoreline erosion, waterfront redevelopment, water quality, fisheries management, natural resource conservation, and private property rights.

Public comment on the LMCP Scoping Document, released June 2001, and the P/DEIS, released September 2001, were considered in determining the inland boundary. Public input supported the priorities identified by the 1995 Public Workgroups and many comments supported a watershed approach to development of the program boundary. A more detailed discussion of comments received is below.

**Boundary Development**

Following the workgroups, the DNR conducted inventories that identified resources related to the identified priorities. These inventories allowed the DNR to determine where special management areas were in relation to the Lake Michigan coastal region.

An examination of natural features was used as the starting point to determine areas that have an impact on coastal waters and natural resources. Watershed boundaries can provide this information. “Watershed

boundaries are defined by the topographic features that dictate natural drainage patterns within an area."[1] A watershed perspective provides a comprehensive approach to managing natural resources that focuses on producing environmental results while incorporating the communities that depend on those natural resources. Proponents of the watershed approach also highlight its potential to improve government coordination and streamlining. "The approach can result in cost savings by leveraging and building upon the financial resources and the willingness of the people with interests in the watershed to take action. Through improved communication and coordination the watershed approach can reduce costly duplication of efforts and conflicting actions."[2]

Indiana's Lake Michigan watershed encompasses the area that drains into the state's portion of Lake Michigan through its ditches, streams, wetlands, groundwater supplies, and lakes. The U.S. Geological Survey has defined watersheds of the United States by using a hierarchical classification of hydrologic drainage basins. Each hydrologic unit is identified by a unique code. Indiana's coastal region falls into Region 04, the Great Lakes Region, along with parts of Illinois, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin. This large region is further divided into subregion 0404, Southwestern Lake Michigan, which includes 1,970 square miles of drainage area into Lake Michigan from the St. Joseph River Basin to and including the Milwaukee River Basin and parts of Illinois, Indiana, Michigan, and Wisconsin. The Southwestern Lake Michigan subregion contains the cataloging unit, 04040001, Little Calumet-Galien watershed. This watershed includes a drainage area of 705 square miles in Illinois, Indiana, and Michigan. The Little Calumet-Galien watershed covers portions of Lake, Porter, LaPorte, and St. Joseph Counties in Indiana and all of its waterbodies drain into Lake Michigan.

The Little Calumet-Galien watershed does not include a portion of Lake County that historically drained into Lake Michigan. The Little Calumet and Grand Calumet Rivers have been extensively modified and diverted. In 1850, Hart Ditch was excavated from the town of Dyer to a site near Munster to improve local drainage. This diverted flow to the Upper Plum Creek basin in Illinois. In 1922, the Calumet Sag Channel in Illinois was constructed. This new channel diverted runoff from part of the Little Calumet River watershed out of the Lake Michigan drainage basin and into the Mississippi River basin.

Similar construction projects affected the Grand Calumet River. In 1862, the Calumet Feeder Canal was constructed. This canal diverted the Grand Calumet River flow east into the Illinois and Michigan Canal and into the Mississippi River basin. Although these portions of the Little and Grand Calumet Rivers were once part of the Little Calumet-Galien watershed, the man-made flow diversions have removed them from the U.S. Geological Survey's classification, which is based on surface drainage patterns.

Inventories and studies were also evaluated as an additional layer of information to develop a draft Coastal Program Area inland boundary. More information about studies conducted during program development can be found in Chapter 6. These studies demonstrate the importance of the area surrounding the portions of the Little Calumet and Grand Calumet Rivers that were diverted from the Lake Michigan basin. This area contains resources that impact the ecological, recreational, and cultural resources of Indiana's coastal region. For example, the movement of aquatic nuisance species, as well as desirable aquatic species, has been documented into Indiana's Lake Michigan watershed from the diverted sections of the Grand and Little Calumet Rivers. There are six historic districts and numerous historic sites in these sub-watersheds, and the both rivers have been locally identified for their potential as recreational corridors. Because the LMCP addresses issues relating to more than water quality, such as

[1] Coastal America. January 1994. Toward a Watershed Approach" A Framework for Aquatic Ecosystem Restoration, Protection, and Management.
[2] U.S. Environmental Protection Agency, Office of Water. Watershed Approach Framework. http://www.epa.gov/OWOW/watershed/framework.html#2

fisheries, recreation and cultural resources, the proposed Coastal Program Area's inland boundary includes these subwatersheds.

Comments submitted on the LMCP scoping document and P/DEIS, were also considered to develop the boundary. Some comments stated a preference for the boundary options presented in 1994, which encompassed a smaller area than the watershed. Several other comments supported the watershed approach, but discussed including the lakes around Valparaiso, the lakes around the city of LaPorte, and Hudson Lake, which they believed were all hydrologically connected through groundwater flow. Based on existing data developed by the DNR Division of Water, the groundwater in proximity to the Valparaiso Lakes does appear to flow towards Lake Michigan; less is know about the groundwater flow for the other lakes mentioned. Based on existing data developed for the report, "*Water Resource Availability in the Kankakee River Basin, Indiana*"[3] the lakes around the city of LaPorte and Hudson Lake occur on a groundwater divide and it is not possible at this time to establish the areas where groundwater flows toward Lake Michigan instead of towards the Kankakee River. Based on surface water flow, the lakes around Valparaiso, LaPorte, and Hudson Lake flow into the Kankakee River basin. Because of the complexity of defining groundwater divides, the DNR determined that it would be better to maintain the program boundary based primarily on the surface water divides. Surface water divides are based on topography and have been established by several studies over time.

An additional comment received on the scoping document resulted in a slight modification to the inland boundary. The dedicated state nature preserve, Biesecker Prairie Nature Preserve, was originally excluded from the proposed boundary in the scoping document. Biesecker Prairie protects a significant natural area that is a remnant of a rare natural community for this portion of Northwest Indiana. It is 34 acres and protects an excellent example of prairie and over 200 species of plants, including several rare species. Biesecker Nature Preserve, located less than one mile from the watershed boundary, represents a high quality example of a rare natural community of the Lake Michigan region and was therefore included in the program boundary.

Defining the Coastal Program Inland Boundary

Although watershed boundaries provide a comprehensive approach to defining Indiana's Coastal Program inland boundary, it is not easily identifiable in practical landmarks or legal mechanisms. Therefore, the DNR assessed the practicality of using U.S. Public Land Survey townships as an additional layer of information in defining the inland boundary. The U.S. Public Land System or the Rectangular Survey System is a method of land description used to describe more than 50% of the land in the United States. All of Indiana has been described using this survey system. Land is divided into rectangles called townships that have sides approximately six square miles.

The townships are described by a township number and a range number. Townships were further divided into numbered sections of one square mile. This survey system is a convenient means to identify an inland boundary for the Coastal Program Area since it is defined by a legal description shown in local land surveys. In addition, the U.S. Geological Survey Quadrangle maps clearly show township, range, and sections using the same surveying system. Figure 3.1 shows the location of the quadrangle maps in relation to the watershed boundaries.

The townships and sections allow the inland boundary to be defined in established legally referenced terms and to more precisely identify those areas in close proximity to the Little Calumet-Galien River watershed. Figure 3.2 shows the Coastal Program Area inland boundary in relation to the Little Calumet-Galien watershed and the artificially diverted watershed.

[3] DNR 1990. Water Resource Availability in the Kankakee River Basin, Indiana.

Figure 3.1: Quadrangles in the Little Calumet-Galien River Watershed

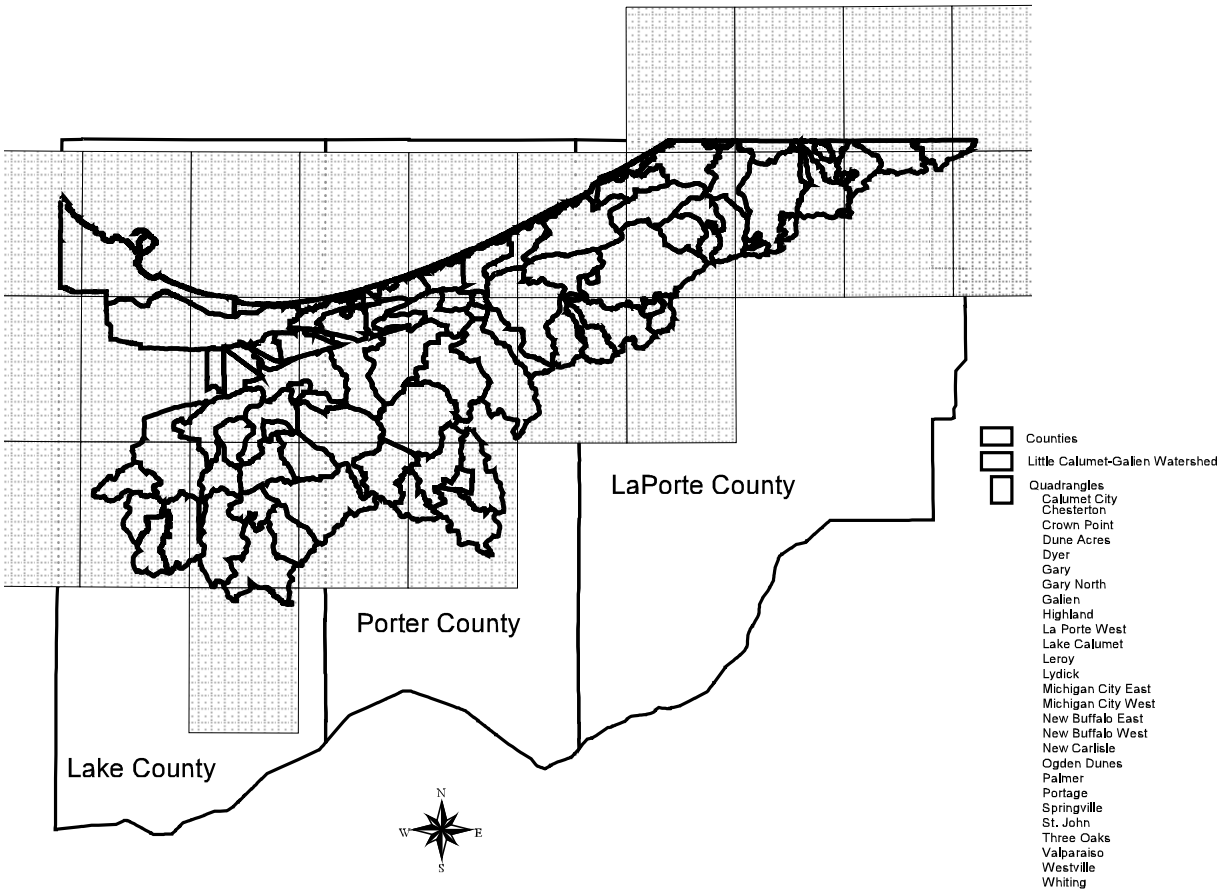



Figure 3.1: Quadrangles in the Little Calumet-Galien River Watershed

**Figure 3.2: Watershed Boundaries and Inland Program Boundary**

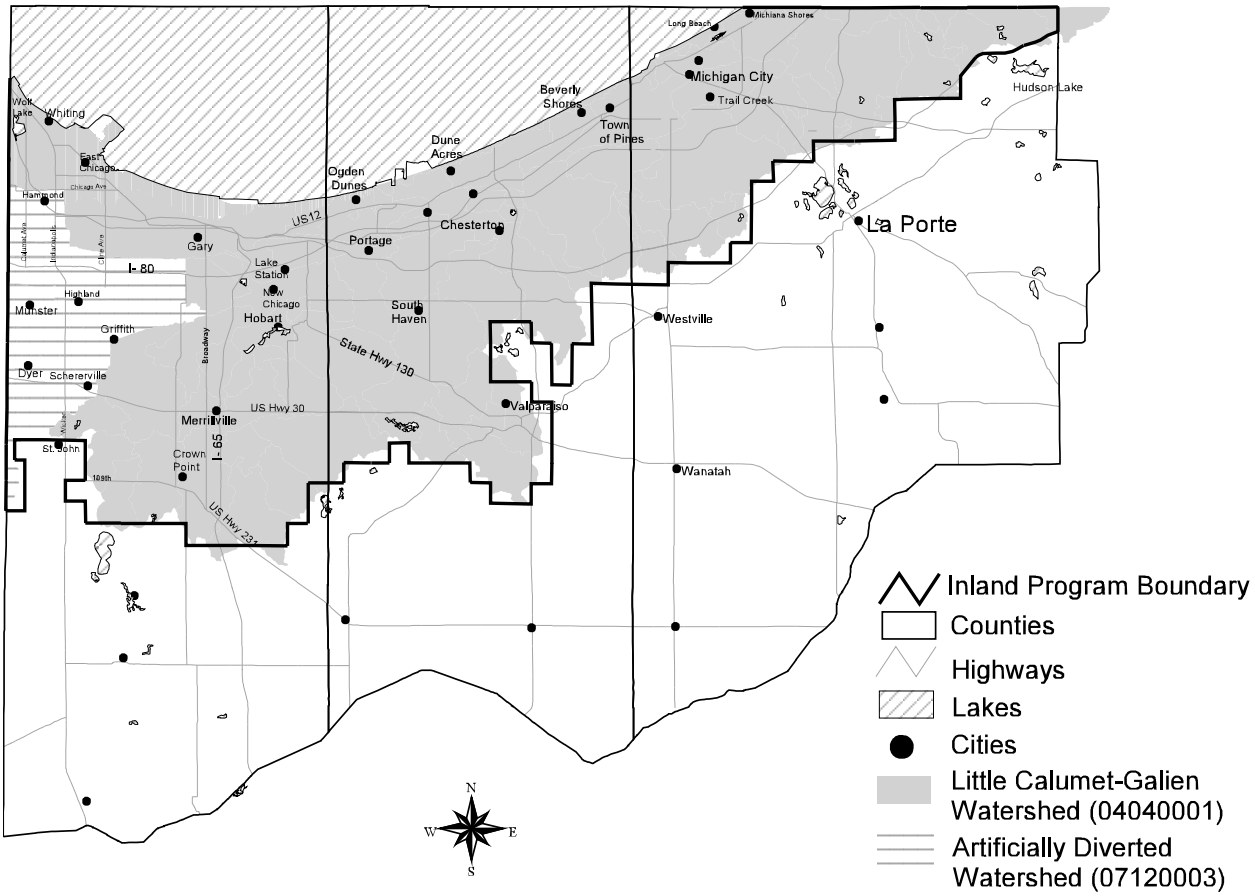



Figure 3.2: Watershed Boundaries and Coastal Program Area Inland Boundary

## Inland Boundary Description

The Coastal Program Area inland boundary (Figure 3.3) is described based on U.S. Geological Survey Quadrangle maps and major roads for each county. A detailed written description of the boundary is in Appendix C. The program boundary is located in the northern portion of Lake, Porter, and LaPorte counties and extends into Lake Michigan to the jurisdictional border with Illinois and Michigan. It excludes lands owned, leased, or held in trust for the federal government. At its widest extent, the boundary extends away from the shoreline 17 miles to the Crown Point area and at its narrowest point, less than 2 miles, just north of Hudson Lake in LaPorte County. The boundary follows the 45-mile shoreline and the approximately 52 miles along an east-west trajectory across the Valparaiso Moraine.

The western extent of the inland boundary lies along the Indiana-Illinois state line. The northern extent lies along the lakeward boundary and the Indiana-Michigan state line in LaPorte County. The townships that define the inland boundary range from 35 North to 38 North and approximately from Range 1 West to 9 West. The inland boundary includes all or a portion of the following quadrangles: Lake Calumet, Calumet City, Dyer, St. John, Highland, Whiting, Gary, Crown Point, Palmer, Portage, Ogden Dunes, Dune Acres, Chesterton, Valparaiso, Westville, Michigan City West, Michigan City East, LaPorte West, Springville, and New Carlisle. Copies of these quadrangle maps can be ordered from the DNR Map Sales Section[4] See Appendix C for more detailed maps of the Lake Michigan Coastal Program boundaries.

## Lakeward Boundary

The LMCP lakeward coastal boundary is the jurisdictional border that Indiana shares with Illinois and Michigan. The lakeward limits, as defined in this section, are for purposes of this program only and represent the area within which Indiana's coastal program may be authorized and financed. These limits are irrespective of any other claims states may have by virtue of other laws.[5]

## Excluded Lands

The boundary of a State's coastal program must exclude lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal government, its officers, or agents. Exclusion of federally owned or leased lands does not exempt them from meeting the Federal Consistency requirements as described in Chapter 11; nor does it prevent the coastal program from forming partnerships and coordinating with federal agencies that own land in the Coastal Program Area, such as the Indiana Dunes National Lakeshore. However, the LMCP is not able to award grants to federal agencies.

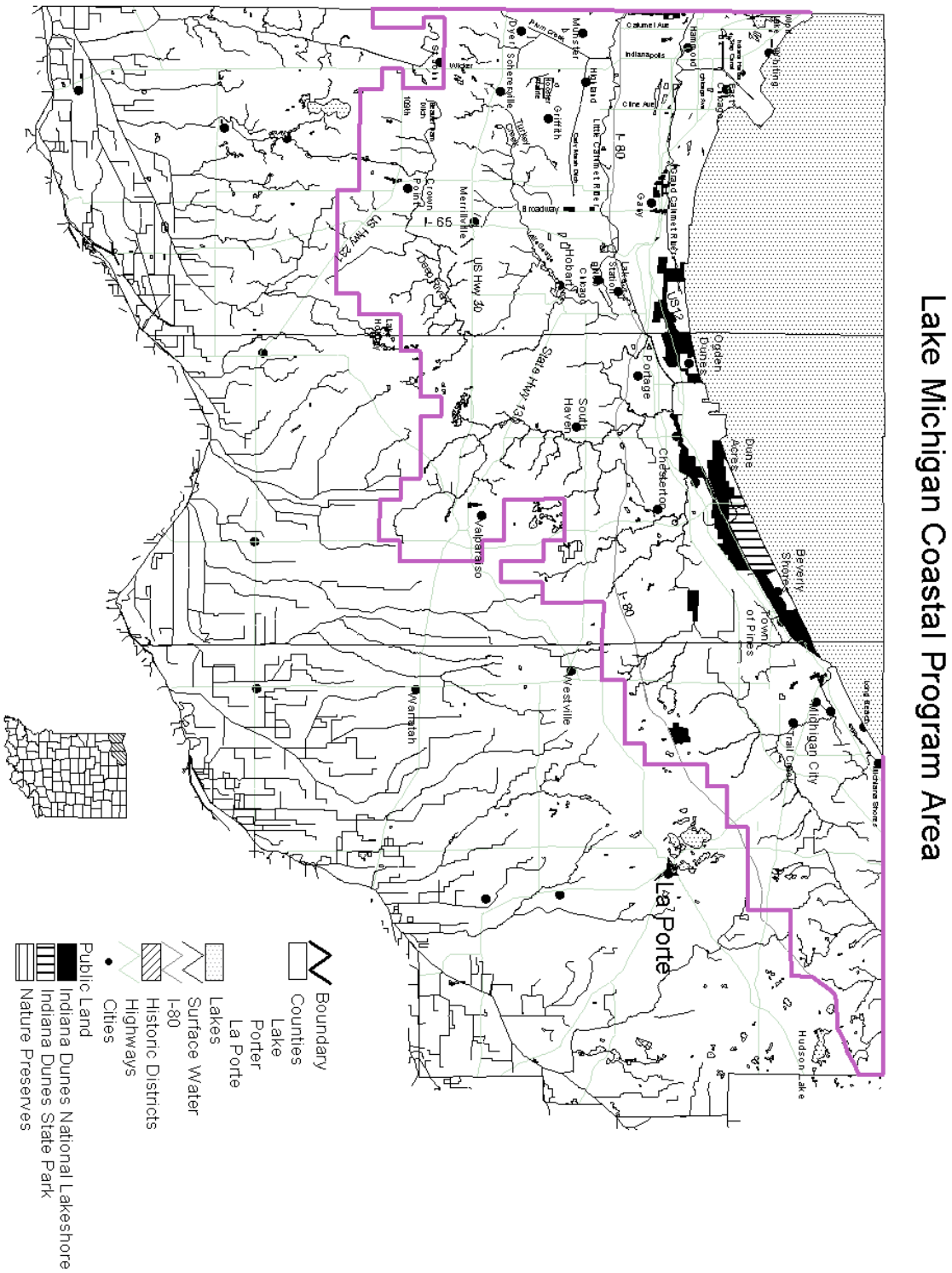
To meet the requirement to exclude federally owned or leased lands, Indiana will describe and map lands owned, leased, held in trust or otherwise used solely by federal agencies. The exclusion of federal lands from the coastal area does not remove federal agencies from the obligation of complying with section 307 of the CZMA (federal consistency review) when federal actions on these excluded lands have spillover impacts that affect any land or water use or natural resource of Indiana's Coastal Program Area. Thus, future development and maintenance projects would be subject to review to determine their consistency with the Indiana coastal program.

[4] DNR Map Sales Section 402 West Washington St. W160; Indianapolis, IN 46204-2742; (317) 232-4180.
[5] §923.32(2)(b)

Not included in this table, but likewise excluded from Indiana's Coastal Program Area, are individual federal buildings and sites such as post offices, small Coast Guard or ACOE installations, and U.S. Armed Forces reserve centers.

| **Site Name** | **Agency** | **County** |
|---|---|---|
| Indiana Dunes National Lakeshore | National Park Service | Lake, Porter, LaPorte |
| Naval Armory | US Navy | LaPorte |
| | | |
| | | |

Figure 3.3: Final Coastal Program Area



# Chapter 4: Indiana Lake Michigan Coastal Program Implementation

Collectively, state, local, and federal agencies manage the natural and cultural resources of Indiana. Management is achieved through a variety of laws and policies that are detailed in Chapter 5. Indiana statutes provide guidance and assign implementation authority for these laws to the State's units of government. Guidance also includes methods the State can use to provide for public participation in the implementation of state laws. The implementation of the Indiana Lake Michigan Coastal Program (LMCP) will be conducted through these existing authorities within state and federal rules and regulations. The LMCP will facilitate program implementation through a networking approach.

This chapter describes the units of government that together administer the laws of Indiana that relate to the management of land and water resources in the coastal region. These entities are the support system for the implementation of the LMCP and are part of a Coastal Program Network. In addition, the role and organization of the LMCP are described.

## Purpose of the Indiana Lake Michigan Coastal Program

The purpose of the LMCP is to enhance the State's role in planning for and managing natural and cultural resources in the coastal region and to support partnerships between federal, state and local government agencies and organizations. The LMCP relies upon existing laws and programs as the basis for achieving its purpose.

The DNR will be the lead agency to facilitate implementation of the LMCP. Within the DNR, the LMCP is located in the Division of Soil Conservation. The LMCP will support activities that achieve the following goals in the coastal region:

- Protect and restore significant natural resources;
- Prevent the loss of life and property in coastal hazard areas;
- Improve public access for recreational purposes;
- Protect and restore important historic and cultural resources;
- Improve government coordination and policy and decision making;
- Prevent, reduce, or remediate nonpoint source pollution that affects coastal waters;
- Revitalize urban waterfronts and ports; and
- Provide for priority water dependent uses.

## Lake Michigan Coastal Program Role and Organization

The DNR is operated under the supervision of a Director. The Natural Resources Commission assists the DNR in policy development and has rule writing and appellate authority for the DNR. The DNR was designated as the lead state agency to receive and administer CZMP funds for implementing the LMCP. The LMCP will not perform regulatory functions. The LMCP will administer the Coastal Grants Program (see Chapter 7), complete consistency reviews, and seek opportunities to develop partnerships among federal, state and local programs. Examples of general tasks that will be performed by the LMCP include program administration, federal consistency review, grant administration, LMCP review and evaluation, networking with state and local agencies, and outreach and education. As the lead fiscal agent for the

program, the LMCP will prepare and submit the grant application, administer funds, including pass-through grants and contracts, and monitor and summarize project performance as required by NOAA OCRM.

The LMCP is housed in the DNR Division of Soil Conservation. The mission of the Division of Soil Conservation is to ensure the protection, wise use and enhancement of Indiana's soil and water resources by coordinating implementation of the state's Clean Water Indiana soil conservation/water quality protection program and providing assistance to local soil and water conservation districts. The staff and technical resources of the DNR and the Division of Soil Conservation will help support the LMCP. In addition, the DNR Office of Legal Counsel and Natural Resources Commission Division of Hearings provide legal advice and assistance.

## Coastal Program Network

There are numerous state and local entities that are responsible for implementing Indiana's laws and policies as described in the LMCP document. The role of these entities will remain unchanged. Permits will be granted or denied with respect to each agency's existing statutes and regulations. State permitting agencies will only administer and apply their existing statutes and regulations; they will not apply authorities of other agencies or programs. The LMCP document sets forth a framework, based on existing policies, laws, and programs, that links existing agencies and laws into a comprehensive network. Through networking among members, state and local perspectives on the management of coastal resources can be integrated. The network will lead to improved coordination, clear establishment of priority issues, and a well-focused effort to meet those priorities.

Coastal Program Network Roles:

*Local Governments* not only develop and enforce local ordinances, but also act as delegates for several state programs such as emergency response and floodplain management. Local governments are also active in economic development and land use issues in their communities. Through the LMCP, local units of government will have an opportunity to obtain financial and technical assistance to develop and implement inventories, plans, and community projects.

*State Agencies* implement a wide range of programs related to the management of coastal resources. Through the LMCP document, the roles of major state agencies, existing policies and laws under their responsibility, and provisions for public participation in State decision-making are detailed. The program document can therefore aid in the identification of state agencies that address various management issues. Additionally, coordination, simplification, and streamlining will be encouraged through the implementation of the LMCP.

*Federal Agencies* conduct many activities in the coastal region. By establishing a cooperative partnership with the CZMP, Indiana's priorities will be represented at the federal level. Federal agencies will be able to work directly with the Coastal Program Network to reduce duplication of effort, improve coordination of projects, and to better understand local and state priorities.

Figure 4.1: DNR Organizational Chart

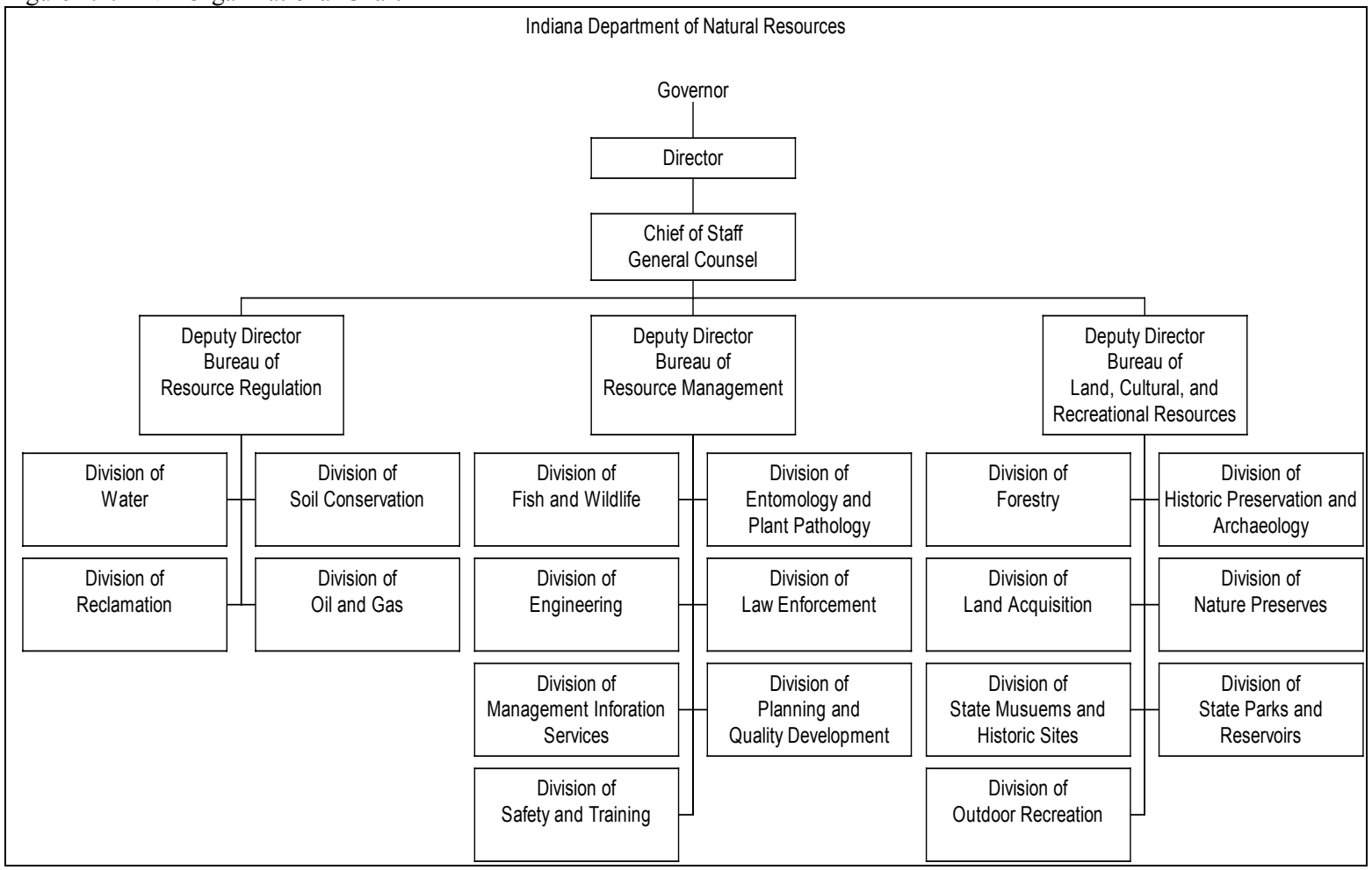
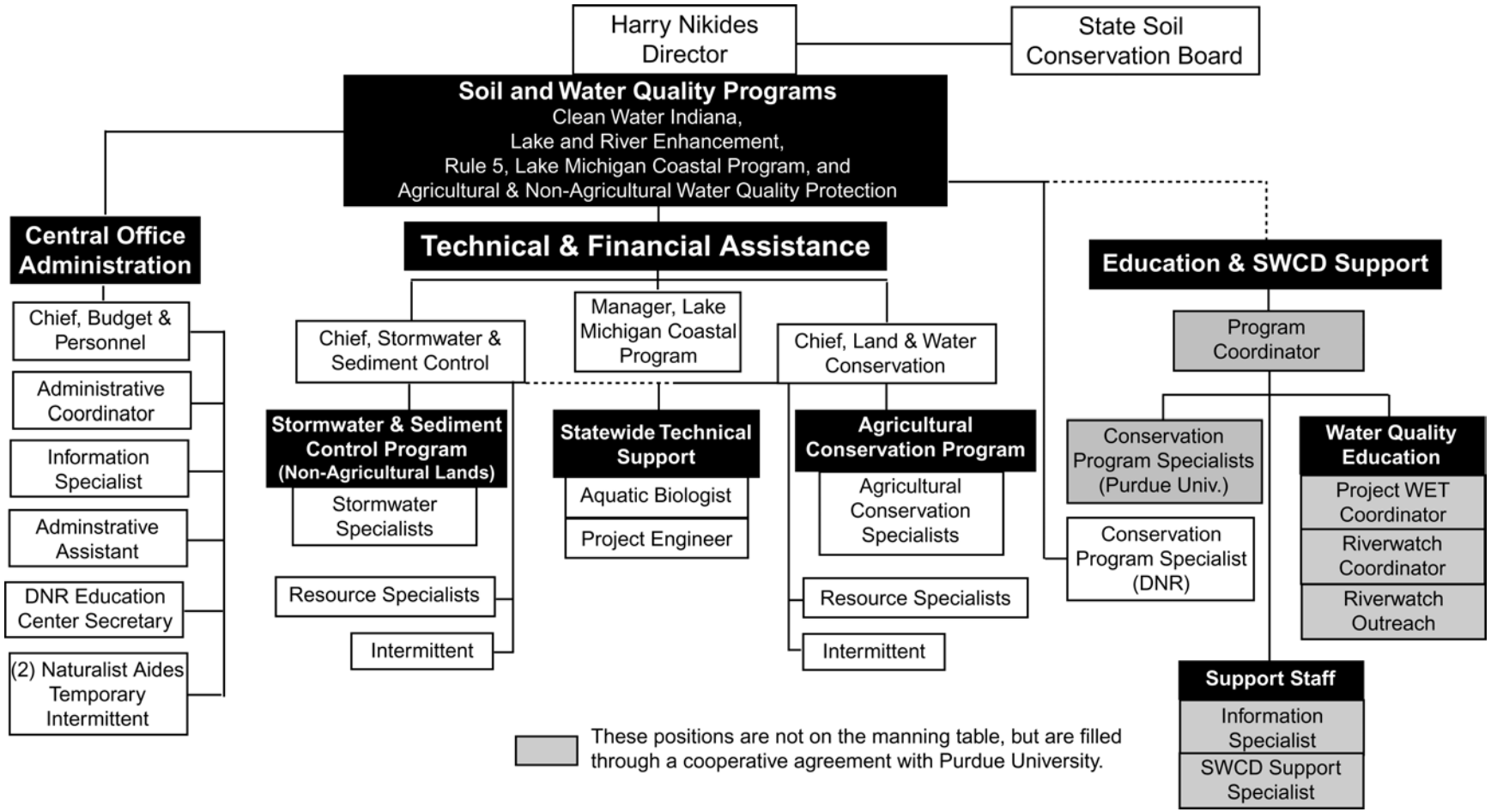


Figure 4.2: DNR Division of Soil Conservation Organizational Chart



## Consistency Among State Agencies

State agencies are already responsible for implementing actions in a manner consistent with the laws and policies of Indiana. However, it is the purpose of the LMCP to enhance coordination of government processes and facilitate coordination. The State will utilize existing coordination agreements to ensure consistency with the program document. The LMCP will assist in enhancing communication and in simplifying governmental processes to ensure state consistency.

Each state agency that conducts activities or issues permits within the coastal area will receive a copy of the program document and subsequent revisions. This will assist state agencies in understanding the roles of agencies and programs. In addition, it will enable state agencies to determine if an action will be consistent and initiate early coordination with the LMCP if there are any concerns.

The State will utilize the agreements, boards, and commissions discussed below to ensure state consistency, conflict resolution and public participation. As needed, the LMCP will work with other agencies to develop additional coordination agreements to continue to ensure consistency.

## Achieving Consistency Through the Coastal Program Network

### Coordination Agreements Among State Agencies

State consistency is essential in achieving improved coordination, increasing predictability in decision making, and ensuring that the LMCP is comprehensive. This section discusses measures to avoid conflicts and achieve consistency in program implementation at the state level. No additional administrative or regulatory requirements have been created, therefore, the LMCP document is a reference of existing state programs and authorities and a guide to identifying opportunities for coordination. The following cooperative agreements demonstrate the State's commitment to working cooperatively to implement the existing laws and policies of Indiana, which comprise the enforceable policies of the LMCP.

#### Indiana Environmental Protection Act

The Indiana Environmental Protection Act (IEPA) was developed specifically to address the need for coordination among state agencies during the implementation of state plans, activities, and programs. All state agencies are required to follow the IEPA. The LMCP will provide the program document to state agencies so that they can fully understand their commitment under IEPA to coordinate their activities with the implementation of this new state plan.

In addition, the state's regulation and policy review boards, the Water Pollution Control Board, Air Pollution Control Board and Solid Waste Management Board, have adopted substantively identical rules for the implementation of IEPA. Environmental impact statements are addressed also.[1] The LMCP will also provide these boards with the program document so that they can also meet their commitment under IEPA.

[1] The IEPA rules of the Air Pollution Control Board are codified at 326 IAC 16. Those of the Water Pollution Control Board are found at 327 IAC 11, and those of the Solid Waste Management Board are found at 329 IAC 5.

IEPA directs the state "to use all practicable means, consistent with other essential considerations of state policy, to improve and coordinate state plans, functions, programs, and resources to the end that the state may do the following:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Assure for all citizens of Indiana safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wise sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."[2]

In addition, to the "fullest extent possible," the "policies, rules, and statutes of the state shall be interpreted and administered in accordance with the policies" set forth in IEPA. All state agencies must do the following:

- "Use a systematic, interdisciplinary approach that will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and decision making that may have an impact on the environment."
- "Identify and develop methods and procedures that will ensure that unquantified environmental amenities and values may be given appropriate consideration in decision making along with economic and technical considerations."
- Include in every recommendation or report on proposals for legislation and other major state actions significantly affecting the quality of the human environment a detailed statement of (A) the environmental impact of the proposal; (B) any adverse impacts that cannot be avoided if the proposal is implemented; (C) alternatives to the proposed action; (D) the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and, (D) any irrevocable and irretrievable commitments of resources that would be involved if the proposed action should be implemented. The Air Pollution Control Board, the Water Pollution Control Board, and the Solid Waste Management Board are directed to define by rule "the actions that constitute a major state action significantly affecting the quality of the human environment."
- Articulate appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources.
- Recognize the long-range character of environmental problems and, where consistent with state policy, "lend appropriate support to initiatives, resolutions, and programs designed to maximize state cooperation in anticipating and preventing a decline in the quality of the environment."
- "Make available to counties, municipalities, institutions, and individuals advice and information useful in restoring, maintaining, and enhancing the quality of the environment."
- "Initiate and use ecological information in the planning and development of resource oriented projects."[3]

[2] IC 13-12-4-4.
[3] IC 13-12-4-5.

IEPA is not identical to its federal counterpart, the National Environmental Policy Act (NEPA). A notable distinction is that unlike NEPA, IEPA exempts permitting actions from the requirement that an environmental impact statement be prepared.[4] However, IDEM rulemaking boards are required to take into account factors listed in IEPA before adopting rules regarding the environment.[5]

Memorandum of Understanding Concerning the Interagency Shared Neutrals Program For Mediation

A MOU establishes the Interagency Shared Neutrals Program among the DNR, IDEM, NRC, Office of Environmental Adjudication, and State Emergency Management Agency. This coordination agreement addresses the need for a conflict resolution process among the State's environmental and emergency management agencies. The MOU establishes a process in which agencies can voluntarily participate in mediation to resolve conflicts. If a cooperative agreement concerning conflict resolution is required with additional state agencies, this MOU can serve as a template.

The MOU says that State agencies may engage in mediation, defined as: "a process in which a neutral third person, called a mediator, acts to encourage and to assist in the resolution of a dispute between two or more parties… The objective is to help the disputing parties reach a mutually acceptable agreement between or among themselves on all or any part of the issues in dispute. Decision making power rests with the parties, not the mediator. The mediator assists the parties in identifying issues, fostering joint problem-solving, exploring settlement alternative, and in other ways consistent with these activities." (Indiana Rules for Alternative Dispute Resolution, Rule 1.3)

Memorandum of Understanding Concerning Permit Coordination For The Departments of Natural Resources and Environmental Management

This MOU between DNR and IDEM provides that the agencies, Indiana's environmental management agencies, will work toward better coordination and cooperation in administering the State's regulatory programs. It also provides that a technical workgroup will establish guidelines for early coordination of the permit process for projects directed to activities within: 1) Lake Michigan and its navigable tributaries; and 2) Waterways permitting, generally, in Indiana where it is deemed more productive and more responsive to the two agencies and the applicant.

The technical workgroup will identify strategies to do the following:

- Determine whether early coordination might be accomplished for a project to include the applicant, IDEM, and DNR (and, as appropriate, the ACOE, FWS, EPA, and the U.S. Coast Guard).
- Where not already available, establish a process for the applicant to request early permit coordination and negotiation to resolve any disagreements.
- Establish a measure of success of the joint permitting process, and whether the development of a joint permit application among IDEM, DNR, and the ACOE is feasible.
- Determine whether other methodologies, supportive of streamlining and protective of the environment, should also be pursued.
- IDEM and DNR will jointly publish a permit handbook or brochure to assist local communities in Indiana.

[4] IC 13-12-4-8.
[5] *Indiana Environmental Mgt. Bd. v. Indiana-Kentucky Elec. Corp*., 393 N.E.2d 213 (1979 Ind. App.).

## Interagency Regulatory Commissions and Boards

The following commissions and boards establish or recommend state policies and regulations. Except for the Northwestern Indiana Regional Planning Commission and the Lake Michigan Marina Development Commission, each maintains representation from multiple state agencies to achieve consistency in their activities. In addition, most also include representatives from local government. The LMCP will utilize and consult with these entities to achieve consistency with state and local agencies.

### Natural Resources Commission (NRC)

The NRC is established at IC 14-10-1-1. The commission consists of twelve members, who include representation from the Indiana DOT, IDEM, DNR, chairman of the advisory council for lands and cultural resources, chairman of the advisory council for water and resource regulation, president of the Indiana Academy of Science, and five citizen members.

The NRC's primary duties are to:

- Assist in implementing uniform policies for natural and cultural resources, including the properties owned by the state and managed through the DNR.
- Adopt rules and develop related nonrule policy documents on behalf of the DNR.
- Oversee the conduct of administrative reviews and mediation for natural resource, navigation, and cultural resources issues within the legal authority of the commission.
- Direct and review special initiatives by its Division of Hearings, the DNR, the Advisory Council for Lands and Cultural Resources, and the Advisory Council for Water and Resource Conservation.

### Air Pollution Control Board

The Air Pollution Control Board is established at IC 13-17-2-1. The board is comprised of eleven members which include one representative of each of the following interests: agriculture, manufacturing, labor, local government, small business, health professional licensed to practice in Indiana, and the general public. Ex officio members are the commissioner of the Indiana State Department of Health (ISDH), Director of the DNR, and the Lieutenant Governor. The board is charged with adopting rules necessary to implement the federal Clean Air Act and operating policies concerning the activities of the IDEM.

### Solid Waste Management Board

The Solid Waste Management Board is established at IC 13-19-2-1. The board is comprised of one representative from each of the following interests: agriculture, environmental, local government, labor, health professional licensed to practice in Indiana, solid waste management industry, solid waste management districts, and the general public. Ex officio members of the board are the Commissioner of ISDH, Director of the DNR, and the Lieutenant Governor. The board is responsible for adopting rules to regulate solid and hazardous waste and atomic radiation, including rules necessary for the implementation of the federal Resource Conservation and Recovery Act. The board reviews orders and determinations made by the Commissioner of IDEM and develops operating policy concerning the activities of IDEM.

### Water Pollution Control Board

The Water Pollution Control Board is established at IC 13-18-1-1. The board consists of one representative from each of the following interests: agriculture, environmental, manufacturing, local government, labor, health professional licensed to practice in Indiana, small business, and the general

public. Ex officio members of the board are the Commissioner of the ISDH, Director of DNR, and the Lieutenant Governor. The board is responsible for adopting rules to regulate water pollution, including rules necessary for the implementation of the federal Clean Water Act. The board reviews orders and determinations made by the Commissioner of IDEM and develops operating policy concerning the activities of IDEM.

Northwestern Indiana Regional Planning Commission (NIRPC)

NIRPC is a regional council of local governments serving the three counties of northwest Indiana. NIRPC is designated the Metropolitan Planning Organization for northwest Indiana and is therefore responsible for coordinating the urban transportation planning process for the region. This NIRPC function is conducted in coordination with IDOT. In addition, NIRPC provides a forum to address regional issues relating to the environment and community and economic development. NIRPC consists of 37 members appointed by local elected officials and one member appointed by the Governor. At least two-thirds of the Commission members must be local elected officials. The Commission or its Executive Board holds monthly public meetings. NIRPC staff provides services for several partner organizations including the Little Calumet River Basin Development Commission, the Lake Michigan Marina Development Commission, the Environmental Management and Policy Committee, and the Northwest Indiana Quality of Life Council.

Lake Michigan Marina Development Commission (LMMDC)

The LMMDC was created in 1985 by the Indiana General Assembly to spur marina development on Indiana's shoreline and its navigable tributaries, Portage Burns Waterway and Trail Creek. The LMMDC is responsible for comprehensive planning of marina development and for recommending state and local legislation to facilitate the development and successful operation of marinas. The LMMDC is comprised of 6 cities: Michigan City, Portage, Gary, East Chicago, Hammond, and Whiting.

Indiana Emergency Response Commission

The Indiana Emergency Response Commission (IERC) consists of 13 members appointed by the Governor who represent local and state government, industry and the public. The commission is chaired by the director of the State Emergency Management Agency (SEMA) and vice chaired by the commissioner of IDEM.

The creation of the IERC was mandated by the Superfund Amendment and Reauthorization Act (SARA) Title III, the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986. It is charged with maintaining Title III records in Indiana, as well as with supervising and coordinating the activities of Indiana's 92 Local Emergency Planning Committees (LEPC).

The LEPCs are composed of elected state and local officials; professionals in law enforcement, emergency management, firefighting, emergency medical services, health, local environmental management, hospital management, transportation, broadcast and print media; community groups; and owners and operators of facilities storing and using Title III chemicals.

Each LEPC is charged with developing an emergency response plan to deal with accidental chemical releases from Title III facilities in its county and with making available to the general public chemical information submitted by those facilities. The LEPCs are funded through the EPCRA under Indiana Code (IC) 6-10.

The IERC operates under authority of IC 36-7-36 and IC 36-7-37. The commission meets bi-monthly and acts upon the recommendations of its six committees: policy, legislative, training, fiscal, communications, and technical, each of which is chaired by a commission member.

Shoreline Development Commission

The Shoreline Development Commission is established by IC 36-7-13.5. The Commission consists of the mayors of East Chicago, Gary, Hammond, Michigan City, Portage, and Whiting; representatives from Ogden Dunes, Beverly Shores, Dune Acres, and Burns Harbor; representatives from shoreline steel and business; and representatives from IDEM, DNR, INDOT, and the IDEM Northwest Indiana Advisory Board; and several positions appointed by the Lt. Governor, president pro tempore of the Senate, and speaker of the House of Representatives. The Commission addresses an area that includes the Lake Michigan shoreline and corridors along major tributaries in Lake, Porter, and LaPorte counties.

The purpose of the Commission is to prepare a comprehensive master plan for development and redevelopment that includes plans for remediation of environmental contamination; accounts for economic development and transportation issues relating to environmental contamination; and establishes priorities for development or redevelopment of qualifying properties. The IDEM is named as the technical advisor for the activities the commission will perform. The Shoreline Environmental Trust Fund was also established to provide funding for the activities supported by the Shoreline Development Commission.

## Coordination Within DNR

As the lead agency for implementation of the LMCP, coordination among the Divisions of DNR is essential to maintaining the Coastal Program Network. The DNR Lake Michigan Workgroup consists of representatives from DNR Divisions as well as a representative from IDEM Northwest Regional Office. The committee will meet regularly to exchange information about on-going projects in the coastal area and to identify opportunities for coordination.

## Members of the Coastal Program Network

The following state agencies, commissions, and local delegates for state programs make up the Coastal Program Network. Network members will work together to achieve consistency with Indiana's existing laws and policies as described in the LMCP document.

### State Agencies

Indiana Department of Natural Resources (DNR)

DNR is the state agency responsible for the protection, enhancement, preservation, and wise use of Indiana's natural, cultural, and recreational resources for the benefit of Indiana's citizens. Therefore the DNR was designated as the agency responsible for the development and implementation of the LMCP. DNR divisions carry out Indiana's statutory requirements with the approval of the director and advice of the Natural Resources Commission as well as many boards and councils. DNR is also the state's land-holding agency with the power to acquire fee simple and less than fee simple interests in land, waters, and other property. DNR headquarters is located in Indianapolis with several local offices that serve the coastal region.

Goals of the Department include:

- Promote awareness, diversity, availability, and conservation of Indiana's natural, cultural, and recreational resources.
- Emphasize the public information and education potential of DNR programs.
- Acquire additional public lands through the promotion and enhancement of programs such as the Indiana Heritage Trust.
- Apply the watershed/multi-disciplinary management approach to appropriate DNR programs.
- Build upon ongoing DNR management-improvement initiatives, including strategic planning, total quality management, and performance measurement.

Below is a description of several of the divisions that carry out responsibilities for natural and cultural resources in the coastal region.

*Division of Soil Conservation*

The Division of Soil Conservation partners with Indiana's Soil and Water Conservation Districts to provide technical, educational, and financial assistance to citizens to solve erosion and sediment related problems affecting land and public waters. These concerns affect both agricultural land and areas undergoing development. The Lake and River Enhancement program specifically targets sediment and nutrient input impacting public lakes, rivers, and streams. Two water conservation education programs are also part of the Division, Hoosier Riverwatch and Project WET. In addition, the Division is responsible for implementing the LMCP. The Division also supports a Resource Conservation Specialist, an Agriculture Conservation Specialist, and an Urban Conservation Specialist that serve the coastal area in cooperation with the local Soil and Water Conservation Districts.

*Division of Entomology & Plant Pathology*

The Division of Entomology and Plant Pathology is charged with the protection of Indiana's plant and apiary resources. To meet this charge, the division administers the Indiana plant health and apiary laws and provides certification of plants and plant commodities exported from Indiana to domestic and international markets. Also, the division surveys for pests not native to Indiana, and works to control pests that are not known to occur naturally or are not widely disseminated in Indiana. The division employs professionals with strong skills in entomology, plant pathology, systematics, apiary science, biological control, nematology, forest pathology, weed science, pest epidemiology, and related sciences to meet the technical requirements of its charge.

*Division of Fish & Wildlife*

The Division of Fish and Wildlife, committed to managing its namesake resources, serves many constituencies. The division provides Hoosiers hunting, fishing, trapping, and wildlife viewing opportunities. Above all, the division strives to protect natural resources through management programs and research, environmental reviews, hunting and fishing regulations, landowner assistance, land acquisition, and maintenance of 18 fish and wildlife areas and other properties totaling more than 120,000 acres throughout the State. The division supports District Wildlife Biologists, Fisheries Biologists, and an Environmental Biologist that serves the coastal area. In addition, the division established a Lake Michigan Fisheries Research Program at the Lake Michigan office in LaPorte County.

*Division of Forestry*

The Division of Forestry's diverse programs include state forests, nurseries, private forest land assistance, wildfire prevention, forest products utilization and marketing, forest health, urban and community forestry, licensed timber buyers, and forestry education and information. The division promotes and practices good stewardship of natural, recreational, and cultural resources on Indiana's public and private forests. The Division supports a district Forester that serves the coastal area from an office in the Kankakee Fish and Wildlife Area.

*Division of Historic Preservation & Archaeology*

The Division of Historic Preservation and Archaeology works with other government agencies, local groups, and individuals throughout Indiana to promote the preservation and enhancement of Hoosier heritage. The division's core activities include identifying historic places, processing nominations to the National Register of Historic Places and the Indiana Register of Historic Sites and Structures, conducting protective reviews of undertakings that may affect historic resources, funding preservation and archaeology projects through competitive matching grants programs, administering tax incentives for rehabilitation projects on historic properties, and a wide range of archaeological activities. Special publications and educational outreach programs are other important division projects.

*Division of Law Enforcement*

The Law Enforcement division has the duty and responsibility to enforce all state laws. Indiana conservation officers concentrate their enforcement efforts on laws relating to fish, wildlife, boating, snowmobiling and off-road vehicles. Also, conservation officers investigate incidents that result in pollution that threatens the environment and wildlife. Conservation officers patrol Indiana's lakes, rivers, reservoirs, and rural areas 24 hours a day, seven days a week. The division supports a District headquarters at the Lake Michigan office in LaPorte County.

*Division of Nature Preserves*

The Division of Nature Preserves is responsible for finding, protecting, and managing Indiana's natural areas. The division carries out this work in partnership with state, federal, and local agencies, conservation groups, and private landowners. Following inventories to locate Indiana's rarest features, nature preserves are acquired (primarily with partners) through the Indiana Heritage Trust; and being dedicated under state law permanently protects them. The preserves are managed to ensure that their natural features remain for future generations. The Natural Heritage Data Center manages information on Indiana's biological diversity, helping decision makers avoid impacting Indiana's biological treasures, and helping DNR partners set protection priorities. The division supports a Regional Ecologist that serves the coastal area from an office in Jasper-Pulaski Fish and Wildlife Area.

*Division of Outdoor Recreation*

The Division of Outdoor Recreation administers six grant programs: Recreational Trails Program, Land and Water Conservation Fund (LWCF), Shooting Range, Hometown Indiana and Wabash River Heritage Corridor Fund. The division assists local park agencies with recreation planning activities and approves five-year park plans. The division also develops the Statewide Comprehensive Outdoor Recreation Plan. The division maintains the 58-mile Knobstone Trail and the state-designated areas of Wildcat Creek, Blue River, and Cedar Creek. Leasing and maintenance agreements for five public snowmobile trails are coordinated through the Division and staff assists the Trails Advisory Board, the Blue River Commission

and the Wabash River Heritage Corridor Commission. Also, division staff maintains a database and Geographic Information System datasets for trails, recreational facilities, and grant programs.

*Division of Water*

Division of Water administers laws related to Indiana's surface and ground water resources. The division assesses the state's water resources, investigates water use conflict, oversees flood control planning, coordinates floodplain management, regulates construction in and along the waterways, and inspects dams and levees throughout the state. The division's mission is to ensure wise and beneficial use of the state's water resource to the benefit of all its citizens now and into the future. The division supports a Lake Michigan Specialist that serves the coastal area from the Lake Michigan office in LaPorte County.

*Division of State Parks & Reservoirs*

The mission of Indiana's state parks is to preserve, restore, manage and interpret the natural and cultural history of Indiana while providing quality recreational opportunities compatible with the resources. The nine reservoir properties provide recreation opportunities, resource management, and flood control. In addition, the Division manages Indiana Dunes State Park in the coastal region and 21 other parks throughout the state.

*Division of State Museums and Historic Sites*

The Division of Museums and Historic Sites collects, preserves and interprets the natural and cultural history of Indiana. It operates and maintains 14 State Historic Sites throughout Indiana and contracts for the joint operation of three other State Historic Sites. These sites include more than 100 historic structures. The Division operates the Indiana State Museum, located in Indianapolis, which interprets many aspects of Indiana history from the ancient coal forests through the Civil War to Amish lifestyles and high school basketball.

Indiana Department of Environmental Management (IDEM)

A goal of the IDEM is to better protect Indiana's environment and to serve the public by basing environmental decision-making on quality and scientific data through a transparent process that shares environmental information with the public and reduces regulatory burden.

IDEM is designated as the following:

- The water pollution agency for Indiana for all purposes of the federal Water Pollution Control Act and the federal Safe Drinking Water Act.
- The solid waste agency for Indiana for some purposes of the federal Resource Conservation and Recovery Act.
- The air pollution control agency for Indiana for all purposes of the federal Clean Air Act.
- The state agency with responsibility concerning the Midwest Interstate Compact on Low-Level Radioactive Waste.
- The state agency with responsibility concerning the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the federal Superfund Amendments and Reauthorization Act of 1986.
- The state agency with responsibility concerning the federal Defense Environmental Restoration Act.

IDEM has a Northwest Indiana regional office located in Lake County.

Indiana Department of Administration

The Indiana Department of Administration is an umbrella agency that provides services to other departments and agencies to help assure the smooth functioning of state government. Services include: contract management and administration for state agencies, forms distribution, facilities management at the Indiana Government Center, human resources services for state employees, information technology services, and administration of the State Land Office. The department also manages and maintains state-owned buildings, facilities, and equipment.

Indiana Department of Commerce

The Department of Commerce helps create and retain jobs for people of Indiana and promotes economic growth for the state. The Department works for development and expansion of business and industry, including international trade, provides economic development assistance to local communities, and promotes the development of tourism.

Indiana Department of Transportation

The Indiana Department of Transportation (INDOT) selects, builds, and maintains transportation projects and is charged with developing a multi-modal transportation system that includes air transport, rail, highways, and public transit. INDOT maintains an 11,000-mile highway system and oversees traffic-control devices for these roadways.

Indiana State Department of Health

The Indiana State Department of Health (ISDH) promotes and protects the health and welfare for all Indiana citizens through education, information, the enforcement of laws and regulations, special projects, and broad programs directed at the public. The Department provides an extensive range of services, maternal and child health programs, and family planning programs.

Indiana State Emergency Management Agency

The State Emergency Management Agency is the lead agency for the coordination of emergency management programs and response measures. Its mission includes preparing citizens with the proper information before a disaster strikes, responding to a disaster, assisting with recovery efforts, and taking proper steps to prevent or lessen effects of a disaster before or after it occurs.

## Commissions

Several additional state designated commissions, not already previously mentioned have responsibilities that affect the coastal region.

Indiana Advisory Commission on Intergovernmental Relations

The goals of the Advisory Commission on Intergovernmental Relations are:

- Better understanding of the process of government and the intended and unintended outcomes of policy decisions.
- Better communication between all levels of government and citizens.
- Long term planning between all levels of government.

- Applied research on policy areas in order to better understand the impacts of mandates and policy changes.

Indiana Utility Regulatory Commission

The mission of the Utility Regulatory Commission is to:
- Prevent utility rates from becoming unreasonably high or discriminatory
- Allow utilities to charge rates that will cover their operating expenses and capital costs and enable their shareholders to recover a reasonable return on their investment.

Indiana Ports Commission – Burns International Harbor

The Ports Commission develops and maintains three public port facilities in Indiana. Functioning without a public operating subsidy, IPC generates funds through leases, agreements, and user fees. IPC also has the responsibility to develop and assist in marketing foreign trade zones statewide.

Little Calumet River Basin Development Commission

The Little Calumet River Basin Development Commission was established by the Indiana General Assembly in 1980 to "provide for the creation, development, maintenance, administration, and operation of park, recreation, marina, flood control, and other public works projects" along the west arm of Little Calumet River in Lake and Porter Counties. Federally sponsored by the ACOE, the project will provide a 200-year level of flood protection together with recreation features along 10 miles of the Little Calumet River in Lake County from the Illinois/Indiana State Line to Martin Luther King Drive in Gary. The project comprises some 2,500 acres of publicly owned property.

## Local Agency Delegates For State Programs

The following local agencies implement specific state laws and polices locally in cooperation and with approval of the State.

City of Gary Environmental Affairs

The IDEM authorizes the city of Gary with responsibility for Gary air permit inspection and enforcement.

City of Hammond Department of Environmental Management

The IDEM authorizes the Hammond Department of Environmental Management with responsibility of inspection and enforcement related to air permits, asbestos removal inspection and enforcement, and inspection/enforcement of Stage II vapor recovery equipment for fuel retailers.

Lake, Porter, and LaPorte County Departments of Health

The county health departments are authorized by the State Department of Health with responsibility for inspection, permitting, and enforcement for residential septic systems (ISDH retains authority for commercial septics).

Lake, Porter, and LaPorte County Local Emergency Planning Committees

Local Emergency Planning Committees are authorized by the State Emergency Management Agency (SEMA) to plan and prepare for emergency response to releases and spills of hazardous materials. Local committees maintain files and records for public access. Local emergency responders are trained by SEMA through the SARA Title III training program.

Lake, Porter, and LaPorte County Solid Waste Management Districts

Legislation enacted in 1990 (IC 13-21-3) requires each county, or combination of counties, to form a solid waste management district. Lake, Porter, and LaPorte counties have each created a solid waste management district. Each is required by IC 13-21-5 to develop and submit to IDEM for approval, a solid waste management plan. The plan must include provisions for source reduction and recycling. Each district has the power to plan for and maintain facilities for solid waste management.

National Flood Insurance Program

Along the Lake Michigan shoreline, 13 communities and the unincorporated areas of Lake, Porter, and LaPorte counties are participating in the regular phase of the National Flood Insurance Program. The regular phase involves the agreement by the communities to adopt special regulations regarding development activities in their respective designated special flood hazard areas. The shoreline communities participating in the program have adopted ordinances that are filed with the DNR, Division of Water. In Lake County, participating shoreline communities include East Chicago, Gary, Hammond, Whiting, and Lake County Unincorporated. Participating communities in Porter County include Burns Harbor, Portage, Ogden Dunes, Dune Acres, Porter, Beverly Shores, and Porter County Unincorporated. LaPorte County communities include Michigan City, Michiana Shores, Long Beach, and LaPorte County Unincorporated.

Northwestern Indiana Regional Planning Commission (NIRPC)

As the metropolitan planning organization for the region, NIRPC is responsible for coordinating the urban transportation planning process for the region. This NIRPC function is conducted in cooperation with the Indiana Department of Transportation (INDOT). Federal programs include Intermodal Surface Transportation Efficiency Act (ISTEA), Congestion Mitigation and Air Quality (CMAQ) program under ISTEA (Intermodal Surface Transportation Efficiency Act) and Transportation Equity Act for the 21st Century (TEA21).